

## Bedienungsanleitung (Originalanleitung) Volumenstrommessumformer Serie HFT 3100 mit HART Schnittstelle mit Explosion Proof / Flame Proof-Zulassung

### Operating Instructions (translation of original instructions) Flow Rate Transmitter HFT 3100 with HART Interface with Explosion Proof / Flame Proof



**CSA Explosion Proof (seal not required)**  
**ATEX Flame Proof**  
**IECEX Flame Proof**

**Certificate No.:** CSA MC 224264  
**Certificate No.:** KEMA 10ATEX0100 X  
**Certificate No.:** IECEX KEM 10.0053X

Certification EI. Connection	1/2 -14 NPT Conduit or M20x1.5 Conduit Single leads	1/2 -14 NPT Conduit or M20x1.5 Conduit Jacketed cable
<i>cCSA<sub>US</sub></i>	Class I Groups A, B, C, D, T6, T5 Class I Zone 1 AEx db IIC T6, T5 Gb [US] Ex db IIC T6, T5 Gb [C]  Class II Groups E, F, G T110°C, T120°C Zone 21 AEx tb IIIC T110°C, T120°C Db [US] Ex tb IIIC T110°C, T120°C Db [C]  Class III  Type 4	Class I Groups A, B, C, D, T6, T5 Class I Zone 1 AEx db IIC T6, T5 Gb [US] Ex db IIC T6, T5 Gb [C]  Class II Groups E, F, G T110°C Zone 21 AEx tb IIIC T110°C Db [US] Ex tb IIIC T110°C Db [C]  Class III  Type 4
<i>ATEX</i>	I M2 Ex db I Mb II 2G Ex db IIC T6, T5 Gb  II 2D Ex tb IIIC T110°C, T120°C Db	I M2 Ex db I Mb II 2G Ex db IIC T6, T5 Gb  II 2D Ex tb IIIC T110°C Db
<i>IECEX</i>	Ex db I Mb Ex db IIC T6, T5 Gb  Ex tb IIIC T110°C, T120°C Db	Ex db I Mb Ex db IIC T6, T5 Gb  Ex tb IIIC T110°C Db

Certification EI. Connection	Connection head Aluminum	Connection head Stainless steel
<i>cCSA<sub>US</sub></i>	Class I Groups A, B, C, D, T6, T5 Class I Zone 1 AEx db IIC T6, T5 Gb [US] Ex db IIC T6, T5 Gb [C]  Class II Groups E, F, G T110°C, T120°C  Class III  Type 4	Class I Groups B, C, D, T6, T5  Class II Groups E, F, G T110°C, T120°C  Class III  Type 4
<i>ATEX</i>	II 2G Ex db IIC T6, T5 Gb II 2D Ex tb IIIC T110°C, T120°C Db	II 2G Ex db IIC T6, T5 Gb II 2D Ex tb IIIC T110°C, T120°C Db
<i>IECEX</i>	Ex db IIC T6, T5 Gb Ex tb IIIC T110°C, T120°C Db	Ex db IIC T6, T5 Gb Ex tb IIIC T110°C, T120°C Db

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## 1 Allgemeine Bemerkungen

Falls Sie Fragen bezüglich der technischen Daten oder Eignung für Ihre Anwendungen haben, wenden Sie sich bitte an unseren **technischen Vertrieb**. Die Volumenstrommessumformer der Serie HFT 3100 werden einzeln auf einem rechnergesteuerten Prüfplatz abgeglichen und einem Endtest unterzogen. Sie sind wartungsfrei und sollten beim Einsatz innerhalb der Spezifikationen (siehe Technische Daten) einwandfrei arbeiten. Sollten trotzdem Fehler auftreten wenden Sie sich bitte an den **HYDAC-Service**.

Nicht vorschriftgemäße Montage oder Fremdeingriffe in das Gerät führen zum Erlöschen jeglicher Gewährleistungsansprüche sowie der ATEX, IECEx und CSA Zulassung.

## 2 Funktionsweise

Das vom Sensor gemessene Volumenstromsignal wird in ein dem Volumenstrom proportionales analoges 4 .. 20 mA Signal umgewandelt. Neben der analogen Ausgabe des Messwertes ist eine digitale Kommunikation mit Hilfe des HART Protokolls möglich.

## 3 Installation und Inbetriebnahme

Der Einbau des Messumformers sollte in eine gerade Rohrstrecke erfolgen. Der Einbau unmittelbar hinter Krümmungen, Verzweigungen oder Ventilen ist zu vermeiden. Bei einer geforderten Reproduzierbarkeit von 1%, muss die Länge der Beruhigungsstrecke auf der Einströmseite das 10-fache und auf der Ausströmseite das 5-fache des Nenndurchmessers betragen. Um eine Reproduzierbarkeit < 1 % zu erreichen müssen diese Strecken verdoppelt werden.

Um in kritischen Anwendungsfällen (z.B.: starke Vibrationen oder Schläge) einer mechanischen Zerstörung vorzubeugen, empfehlen wir die Volumenstrommessumformer mittels flexibler Schlauchstücke zu entkoppeln. Werden Volumenstrommessumformer mit elektrischem Anschluss ½-14 NPT or M20x1,5 Conduit nach CSA Normen installiert, müssen bei Vibrationen oder Schlägen zur Entkopplung flexible Conduitsysteme verwendet werden.

Das Rohr muss ständig mit Flüssigkeit gefüllt sein; Lufteinschlüsse verfälschen das Messergebnis.

Vor dem Einbau sollte das Rohrleitungssystem gespült werden, damit keine Festkörper in die Turbine gelangen. Die maximal zulässige Korngröße von Verschmutzungen für den Messbereich 1,2..20 l/min liegt bei 0,1mm und für die Messbereiche 6..60 l/min, 15..300 l/min und 40..600 l/min bei 0,3 mm. Faserige Verschmutzungen sind absolut zu vermeiden. Die Viskosität des Mediums darf 100 cSt nicht überschreiten, da hohe Viskositäten zu einer Beschädigung der Turbine führen können. Die Turbinen sind standardmäßig bei einer Viskosität von 30 cSt kalibriert. Bei Viskositätsabweichungen von mehr als +/- 5 cSt ist mit nichtlinearen Verfälschungen zu rechnen (ca. 2,5 % bei +/- 20 cSt).

Wenn die Volumenstrommessumformer gemäß der Nordamerikanischen Zulassungen eingesetzt werden, ist die Benutzung eines Conduit Systems am ½-14 NPT oder M20x1,5 Gewinde des elektrischen Anschlusses zwingende Voraussetzung, auch im Zonen-System.

Die Installation muss von einem Fachmann nach den jeweiligen Landesvorschriften zu potenziell explosiven Umgebungen durchgeführt werden, z.B.: IEC / EN 60079-14.

Die Volumenstrommessumformer der Serie HFT 3100 HART tragen das **CE** - und **UKA** - Zeichen. Die Konformitätserklärung befindet sich im Anhang.

Die Forderungen der Normen (siehe technische Daten) werden nur bei ordnungsgemäßer und fachmännischer Erdung des Volumenstrommessumformer-Gehäuses mittels des Prozessanschlusses, dem ½-14 NPT oder M20x1,5 Conduit oder der Erdungsklemme (außen an einem Anschlusskopf), erreicht. Sofern eine grün/gelbe Ader vorhanden ist, darf diese zusätzlich, aber nicht zur alleinigen Erdung verwendet werden. Wenn der Hydraulikanschluss über einen Schlauch erfolgt, ist das Gehäuse separat zu erden.

Die Geräte müssen während der Installation geerdet sein.

Die Eignung der Erdung unterliegt der Abnahme der lokal zuständigen Prüfbehörden.

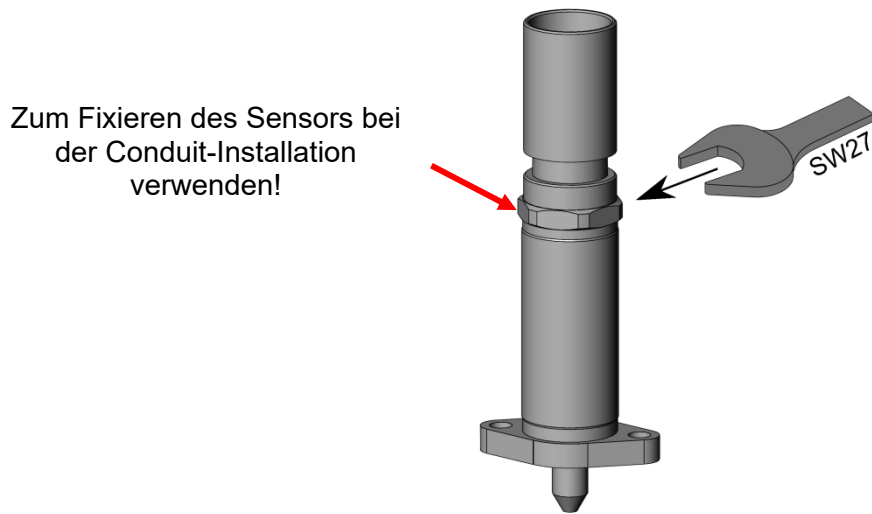
Allgemeine Sicherheitshinweise (vgl. Abschnitt 5) sind in jedem Fall zu beachten.

Einbau gemäß Kontrollzeichnungen Nr. 663929 (siehe Anhang A1)

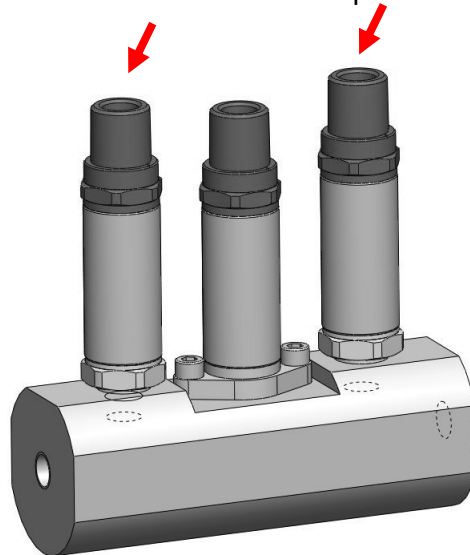
## 4 Wichtige Hinweise für die Conduit-Installation

### **Mechanische Installation**

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



Darstellung mit zusätzlich montiertem Druck- und Temperaturmessumformer:



Darstellung der Version ohne zusätzliche Anschlussmöglichkeit:





## 5 Allgemeine Sicherheitshinweise

Wenn das Etikett nicht mehr lesbar ist, muss der Volumenstrommessumformer außer Betrieb genommen werden.

Die Dichtungen, welche zur Installation des Gerätes verwendet werden sind in regelmäßigen Abständen, in Abhängigkeit der klimatischen Bedingungen und dem Medieneinfluss, auf ihre Funktionstüchtigkeit zu kontrollieren und wenn erforderlich auszutauschen. Diese Überprüfung muss mindestens alle drei Jahre durchgeführt werden. Bei einem Dauerbetrieb von über einem Jahr, empfehlen wir das Gerät zur Überprüfung der Kalibrierung einzusenden.

Wenn das Gerät oder Anschlusskabel beschädigt ist, müssen diese Bauteile ersetzt werden.

Es ist unbedingt auf die Verträglichkeit der Messmedien mit den verwendeten Werkstoffen des Volumenstrommessumformers zu achten; ebenso sind die Berstdrücke unbedingt einzuhalten (Angaben hierzu siehe "Technische Daten"). Die im Zertifikat angegebenen "Sicherheitstechnischen Daten" sind einzuhalten und die Daten hinsichtlich der Nutzung in explosionsgefährdeten Umgebungen sind in jedem Fall zu berücksichtigen.

Der Volumenstrommessumformer ist so zu installieren und zu verwenden, dass elektrostatische Aufladungen durch Betrieb, Wartung und Reinigung ausgeschlossen werden. Für den Einsatz in staubexplosionsgefährdeten Bereichen müssen prozessbedingte elektrostatische Aufladungen, z.B. durch vorbeiströmende Medien, ausgeschlossen werden.“

Die Geräte müssen während der Installation geerdet sein. Die Eignung der Erdung unterliegt der Abnahme der lokal zuständigen Prüfbehörden. Versorgungsspannung: "Limited Energy" - gemäß CAN/UL 61010 (Clause 9.4), Class 2 UL1310, LPS (CAN/UL 60950).

### Hinweis zur Verwendung des elektrischen Anschlusses allgemein (außer Anschlusskopf Aluminium mit Typenschlüssel-Code J):

- Für Class I, II und III: Seal not required.

### Hinweis zur Verwendung für elektrische Anschlüsse mit integriertem Kabel mit Typenschlüssel-Code 9, G, U und W:

- Die Installation muss von einem Fachmann nach den jeweiligen Landesvorschriften zu potenziell explosiven Umgebungen durchgeführt werden (z.B.: IEC / EN 60079-14).
- Fester Einbau ist notwendig.

### Hinweis zur Verwendung des elektrischen Anschlusses bei Einsatz z. B. eines Anschlusskopfes oder eines Klemmenkastens.

Generell ist immer die "Schedule of Limitations" (Liste der Einschränkungen) beim Anschluss der Volumenstrommessumformer an einen Klemmkasten oder einen Anschlusskopf zu berücksichtigen.

Die Zertifikate für die Geräte mit Anschlusskopf, welcher von HYDAC Electronic montiert wird (im Typenschlüssel Code J und Q), werden als Beilagedokument mitgeliefert.

Auszug aus den Zertifikaten der Hersteller Limatherm und Pushna als Beispiele für "Schedule of Limitations" (Liste der Einschränkungen).

- Aluminium Anschlusskopf (Code J im Typenschlüssel), Hersteller Limatherm, Serie XD-AD:
  - Auszug aus dem CSA Zertifikat:  
*"For Class I Group A and for Class I Zone 1 installation a conduit seal is required within 18 inches of enclosure"*  
*("Für Class I Group A und für Class I Zone 1 Einbau ist ein Conduit Seal (Zündsperr) innerhalb eines Abstands von 18" vom Gehäuse gemessen anzubringen")*
  - Auszug aus dem ATEX / IECEx Zertifikat:  
*"No. 2 from Schedule of limitations: For Information on the dimensions of the flameproof joints the manufacturer shall be contacted".*

*("Nr. 2 aus der Schedule of Limitations: Für Informationen über die Abmessungen der explosionssicheren Verbindungen ist der Hersteller zu kontaktieren.")*

- Edelstahl Anschlusskopf (Code Q im Typenschlüssel), Hersteller Pushna, Serie 1016 PSEM
  - Auszug aus dem CSA Zertifikat:  
*"Open circuit before removing cover"*  
*"Den Deckel nur im ausgeschalteten Zustand (unterbrochener Stromkreis) entfernen."*
  - Auszug aus dem ATEX / IECEx Zertifikat:  
*"No. 8 from Schedule of limitations: Consult the manufacturer if dimensional information on the flameproof joints is necessary"*  
*("Nr. 8 aus der Schedule of Limitations: Bitte konsultieren Sie den Hersteller, sofern Informationen über die Abmessungen der explosionssicheren Verbindungen benötigt werden.")*

Wichtiger Hinweis für den Einsatz in Bergwerksanwendungen:



Die chemische Beständigkeit der Volumenstrommessumformer mit elektrischem Anschluss mittels Conduit mit Einzeladern oder freiem Kabelende ist nicht für den Einsatz in Bergwerksapplikationen gemäß ATEX und IECEx Gerätegruppe I getestet.

Für den Einsatz in Bergwerksapplikationen muss ein Conduit-Schlauch oder -Rohr am elektrischen ½-14 NPT oder M20x1,5 Anschluss installiert werden und das Kabel oder die Adern müssen so weit durch den Conduit bzw. das Rohr geführt werden bis ein Bereich erreicht wird, der außerhalb der chemischen Kontaminierung liegt.

## 6 Technische Daten

### 6.1 HFT 3100

Eingangskenngrößen					
Messbereiche und Betriebsdrücke					
HFT 31XX- F21-0020	1,2 .. 20,0 l/min	420 bar	0,32 .. 5,28 gpm	6090 psi	
HFT 31XX- F21-0060	6,0 .. 60,0 l/min	420 bar	1,59 .. 15,85 gpm	6090 psi	
HFT 31XX- F21-0300	15,0 .. 300,0 l/min	420 bar	3,96 .. 79,25 gpm	6090 psi	
HFT 31XX- F21-0600	40,0 .. 600,0 l/min	420 bar	10,57 .. 185,5 gpm	6090 psi	
Mechanischer Anschluss (Anschlussdrehmoment, empfohlen)					
HFT 31XX- F21-0020	G <sup>1/4</sup> (35 Nm)	1/2 NPT (2.0-3.0 Drehungen)	SAE 8 (60 Nm)		
HFT 31XX- F21-0060	G <sup>1/2</sup> (65 Nm)	1/2 NPT (2.0-3.0 Drehungen) 1 NPT (1.5-2.5 Drehungen)	SAE 14 (140 Nm)		
HFT 31XX- F21-0300	G <sup>1 1/4</sup> (240 Nm)	1 1/2 NPT (1.5-2.5 Drehungen)	SAE 20 (290 Nm)		
HFT 31XX- F21-0600	G <sup>1 1/2</sup> (290 Nm)	1 1/2 NPT (1.5-2.5 Drehungen)	SAE 24 (325 Nm)		
Zusätzliche Anschlussmöglichkeiten <sup>1)</sup>					
2x G1/4 A ISO 1179-2 oder 2x 9/16-18 UNF 2B (SAE6 Innengewinde) für Druck und/oder Temperatursensoren mit entsprechender Zulassung					
Medienberührende Teile					
Edelstahl 1.4404, 1.4460, Wolframkarbid					
Ausgangsgrößen					
Ausgangssignal , zulässige Bürde		4...20 mA, 2-Leiter, mit HART Protokoll RL <sub>max.</sub> =(UB - 12 V) / 20 mA [kΩ] für HART Kommunikation min. 250 Ω HART Kommunikation gemäß HART 7 Spezifikation HART Common Practice Commands z. B. Ändern der Messbereichsgrenzen (siehe Tabelle)			
Genauigkeit		≤ 2 % des Momentanwertes			
Umgebungsbedingungen					
Betriebs-, Umgebungs- und Mediumtemperaturbereich <sup>2)</sup>		T6, T110°C Ta = -40 .. +60 °C [-40.. +140 °F] T5, T120°C Ta = -40 .. +70 °C [-40.. +158 °F]			
Lagertemperaturbereich		-40 .. +100 °C [-40.. +212 °F]			
CE - Zeichen, UK - Zeichen		EN 61000-6-1 /-2 / -3 /-4; EN 61079-0 / -1 / 31			
Vibrationsbeständigkeit nach DIN EN 60068-2-6 bei 10 ..500Hz		≤ 10 g ≤ 5 g mit Anschlusskopf			
Schutzart nach ISO 20653 <sup>3)</sup> IEC 60529		IP 68 (Versionen mit Anschlusskopf), IP 69 IP 6K9K			
Sonstige Größen					
Versorgungsspannung <sup>4)</sup>		12 .. 30 V DC			
Restwelligkeit Versorgungsspannung		Gemäß FSK Physical Layer Specification (HCF_SPEC_054)			
Messmedium		Hydrauliköl, wasserbasierende Fluide			
Viskositätsbereich		1 .. 100 cSt			
Kalibrier-Viskosität		30 cSt			
Gewicht					
HFT 318X- F21-0020		Ca. 2,5 kg			
HFT 319X- F21-0060		Ca. 4,0 kg			
HFT 31HX- F21-0300		Ca. 5,5 kg			
HFT 31BX- F21-0600		Ca. 7,0 kg			

Note: Verpolungsschutz der Versorgungsspannung, Überspannungs-, Übersteuerungsschutz und Lastkurzschlussfestigkeit vorhanden.

<sup>1)</sup> Nicht für Messbereich 1.2 .. 20.0 l/min

<sup>2)</sup> T120°C nur mit der elektrischem Anschluss siehe S.1

<sup>3)</sup> Für Anschlusskopf: Die Kabelverschraubung muss ebenfalls IP 68 erfüllen und das 1/2-14 NPT Gewinde der Kabelverschraubung muss mittels Gewindedichtungsmasse abgedichtet werden..

<sup>4)</sup> "Limited Energy" - gemäß CAN/UL 61010 (Clause 9.4), Class 2 UL1310, LPS (CAN/UL 60950).

### 6.2 Messbereichsgrenzen:

Mittels HART Common Practice Commands haben Sie die Möglichkeit folgende Messbereichsgrenzen einzustellen:

Untere Messbereichsgrenze		Obere Messbereichsgrenze		Messspanne	
min	max	min	max	min	max
0 % FS	75 % FS	25 % FS	100 % FS	25 % FS	100 % FS

### 6.3 Protokolldaten

HART Version: 7

Manufacturer Code: 0x605E

Manufacturer String: HYDAC ELECTRONIC

Device Type Code: 0xE0FE Volumenstrom als PV und einziger Messgröße.



## 7 Typenschlüssel zur Identifikation des gelieferten Gerätes

HFT 31 XX - F21 - XXXX - S - X - X - 000 (XXX)

### Prozessanschluss

1 = G 1/4"	nur für Messbereich:	1,2 .. 20 l/min
3 = G 1/2"	nur für Messbereich:	6 .. 60 l/min
6 = G 1 1/4"	nur für Messbereich:	15 .. 300 l/min
7 = G 1 1/2"	nur für Messbereich:	40 .. 600 l/min
8 = SAE 8	nur für Messbereich:	1,2 .. 20 l/min
9 = SAE 14	nur für Messbereich:	6 .. 60 l/min
H = SAE 20	nur für Messbereich:	15 .. 300 l/min
B = SAE 24	nur für Messbereich:	40 .. 600 l/min
C = 1/2 NPT	nur für Messbereich:	1,2 .. 20 l/min
		6 .. 60 l/min
D = 1 NPT	nur für Messbereich:	6 .. 60 l/min
E = 1 1/2 NPT	nur für Messbereiche:	15 .. 300 l/min
		40 .. 600 l/min

### Anschlussart, elektrisch

9 = 1/2-14 NPT Conduit (Außengewinde), Einzeladern  
 G = 1/2-14 NPT Conduit (Außengewinde), freies Kabelende  
 J = Anschlusskopf (Aluminium)  
 Q = Anschlusskopf (Edelstahl)  
 U = M20x1,5 Conduit (Außengewinde), freies Kabelende  
 W = M20x1,5 Conduit (Außengewinde), Einzelladern

### Ausgangssignal

F21 = 4 .. 20 mA (2-Leiter), mit HART Protokoll (4 mA = 0 l/min)

### Messbereiche

0020 = 1.2.. 20,0 l/min (0.32 .. 5.28 gpm)  
 0060 = 6.0.. 60,0 l/min (1.59 .. 15.85 gpm)  
 0300 = 15.0..300,0 l/min (3.96 .. 79.25 gpm)  
 0600 = 40.0..600,0 l/min (10.57 .. 185.5 gpm)

### Gehäusewerkstoff

S = Edelstahl

### Gehäuseausführung

1 = ohne zusätzliche Bohrung (Messbereich 0020)  
 2 = mit 2 zusätzlichen Innengewinden G 1/4 ISO 1179-2 (Messbereiche 0060,0300,0600)  
 3 = mit 2 zusätzlichen Innengewinden SAE 6 (Messbereiche 0060,0300,0600)

### Zulassung

D = CSA Explosion Proof (seal not required)  
 ATEX Flame Proof  
 IECEx Flame Proof

### Modifikationsnummer

000 = Standard

Bei Geräten mit anderer Modifikationsnummer ist das Typenschild bzw. die mitgelieferte technische Änderungsbeschreibung zu beachten.

### Kabellänge

Angabe in m oder " (inch)

### 8 Seriennummer

Die Seriennummer enthält die Kalenderwoche und das Jahr, in dem das Gerät hergestellt wurde, neben der sequentiellen Seriennummer.

Konfiguration der Seriennummer (SN): xyykzzzzzz

X	Herstellungsdatum	z. B. : 3 → 2023
yy	Kalenderwoche	z.B. : 11 → KW 11
k	Seriennummer-Index	z.B. : -, A, B
zzzzzz	Fortlaufende Seriennummer	z.B. : 111111

**HFT 31HG-F21-0300-S-3-D-000 (72")**

Supply: 18..30 V **BN:** +Signal  
 Range: 300 l/min **WH:** -Signal  
 Signal: 4..20 mA  
 Flow Rate/HART  
 MWP: 6090 psi

**KEMA 10ATEX0100X**  
 I M2 Ex db I Mb  
 II 2G Ex db IIC T6...T5 Gb  
 II 2D Ex tb IIIC T110°C Db  
**IECEX KEM 10.0053X**

**CSA MC: 224264**  
**CSA 19.2032612X**  
 CL I Gp A, B, C, D T6...T5  
 CL II Gp E, F, G T110°C  
 CL III Type 4

CL I Zn 1 AEx db IIC T6...T5 Gb  
 Ex db IIC T6...T5 Gb  
 Zn 21 AEx tb IIIC T110°C Db  
 Ex tb IIIC T110°C Db

925750  
**SN: 311A111111**

MADE IN GERMANY  
 D-66128 Saarbrücken, Hauptstrasse 27  
**HYDAC ELECTRONIC**

0158

Protection concept  
 Consigne de protection  
 -> Operating Instruction  
 -> 669908

### 9 Anschlussbelegung

Conduit mit Einzeladern  
oder Anschlusskopf (Klemmenblock)

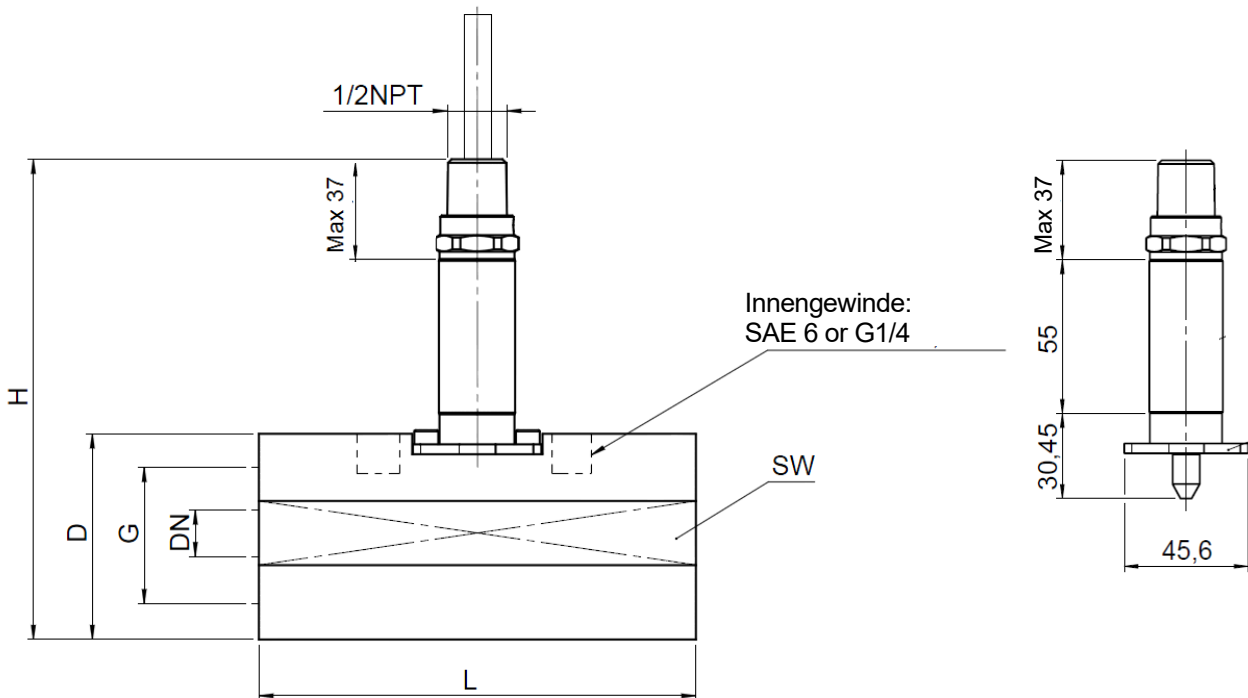
Ader	
rot	Signal +
schwarz	Signal -
grün-gelb	Gehäuse

Conduit (freies Kabelende)

Ader	
braun	Signal +
weiß	Signal -
grün	n.c.
gelb	n.c.

## 10 Geräteabmessungen

Abmessungen mit Sensor mit freiem Kabelende



Ohne zusätzliche Gewindebohrungen für Temperatur- oder Drucksensoren::

Type	Messbereich	L	H	D / SW	G	Anzugsdrehmoment	DN
HFT 31XX-F21-0020	1.2 .. 20 l/min	117 mm	158 mm	60 / 56 mm	G ¼ "	35 Nm	7 mm
HFT 31XX-F21-0020	1.2 .. 20 l/min	117 mm	158 mm	60 / 56 mm	½ NPT	2.0 – 3.0 Drehungen*	7 mm
HFT 31XX-F21-0020	1.2 .. 20 l/min	117 mm	158 mm	60 / 56 mm	SAE 8 (3/4 -16 UNF 2B)	60 Nm	7 mm

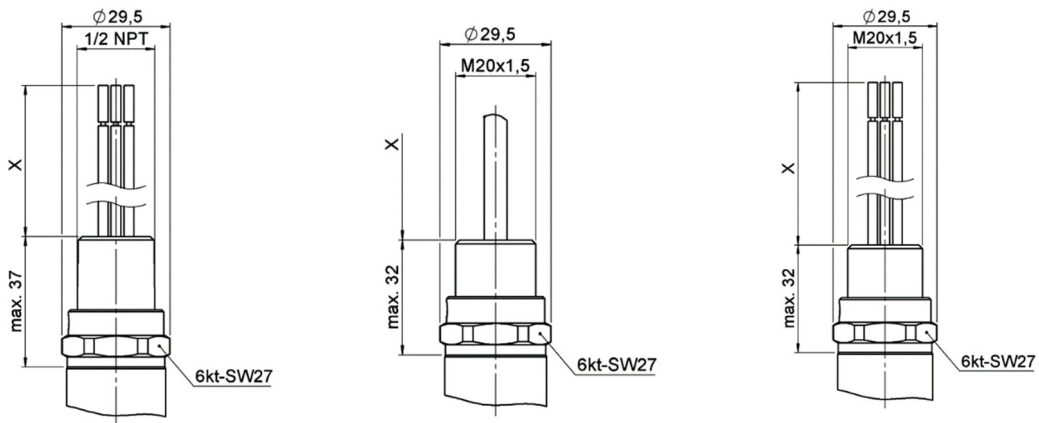
Mit zusätzlichen Gewindebohrungen für Temperatur- oder Drucksensoren:

Type	Messbereich	L	H	D / SW	G	Anzugsdrehmoment	DN [mm]	Gewinde
HFT 31XX- F21-0060	6 .. 60 l/min	144 mm	160 mm	63 / 60 mm	G ½ "	65 Nm	11	G1/4
HFT 31XX- F21-0300	15 .. 300 l/min	155 mm	173 mm	75.5 / 72 mm	G 1¼ "	240 Nm	22	G1/4
HFT 31XX- F21-0600	40 .. 600 l/min	181 mm	178 mm	81 / 76 mm	G 1½ "	290 Nm	30	G1/4
HFT 31XX- F21-0060	6 .. 60 l/min	144 mm	160 mm	63 / 60 mm	½ NPT	2,0-3,0 Drehungen*	11	SAE6
HFT 31XX- F21-0060	6 .. 60 l/min	144 mm	160 mm	63 / 60 mm	1 NPT	1,5–2,5 Drehungen*	11	SAE6
HFT 31XX- F21-0300	15 .. 300 l/min	155 mm	173 mm	75.5 / 72 mm	1 ½ NPT	1,5–2,5 Drehungen*	22	SAE6
HFT 31XX- F21-0600	40 .. 600 l/min	181 mm	178 mm	81 / 76 mm	1 ½ NPT	1,5–2,5 Drehungen*	30	SAE6
HFT 31XX- F21-0060	6 .. 60 l/min	144 mm	160 mm	63 / 60 mm	SAE 14 (1 3/16 -12 UN 2B)	140 Nm	11	SAE6
HFT 31XX- F21-0300	15 .. 300 l/min	155 mm	173 mm	75.5 / 72 mm	SAE 20 (1 5/8 -12 UN 2B)	290 Nm	22	SAE6
HFT 31XX- F21-0600	40 .. 600 l/min	181 mm	178 mm	81 / 76 mm	SAE 24 (1 7/8 -12 UN 2B)	325 Nm	30	SAE6

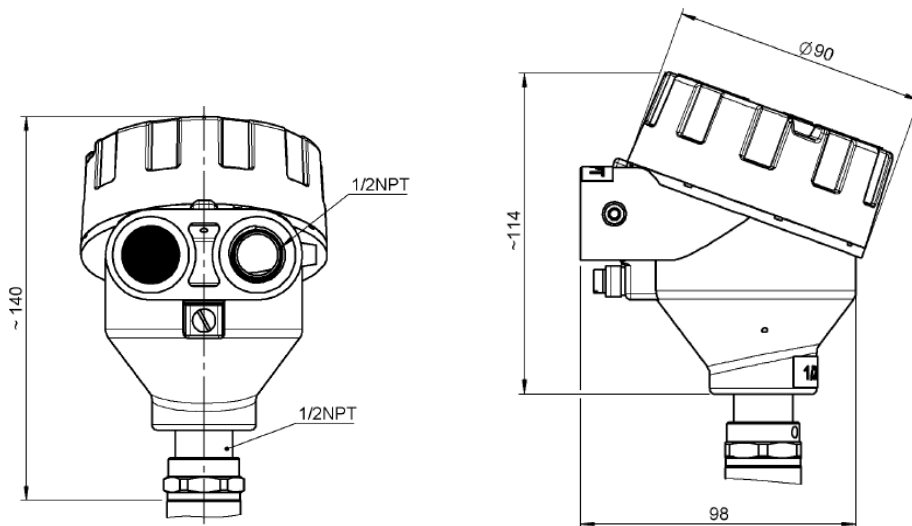
Anm:

\* Nach der Montage mit entsprechendem Anzugsdrehmoment nicht wieder lösen, z. B. zum Ausrichten des Gerätes, da ansonsten die Dichtigkeit der Dichtung nicht mehr gegeben ist.

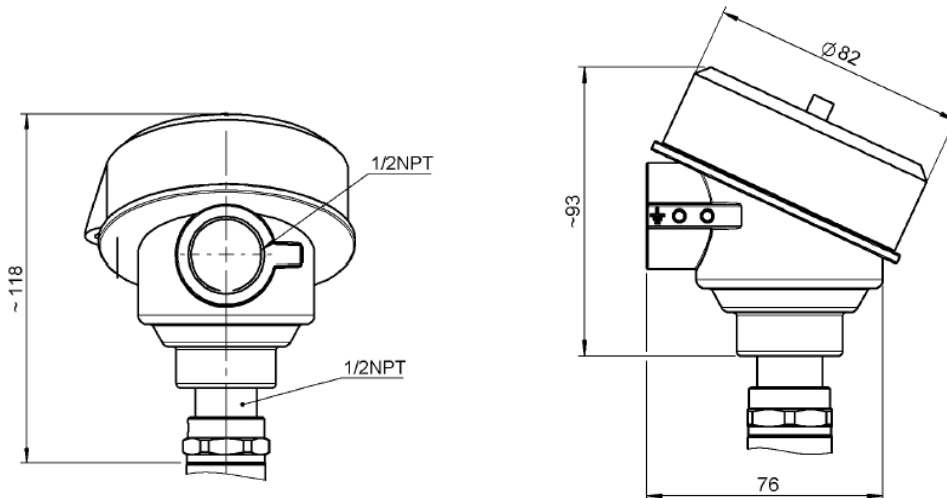
Elektrische Anschlussvarianten



Anschlusskopf Aluminium:



Anschlusskopf Edelstahl:





Hauptstraße 27  
D - 66 128 Saarbrücken  
Deutschland

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

### **HYDAC Service**

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

### **HYDAC SERVICE GMBH**

Hauptstr. 27  
D - 66 128 Saarbrücken  
Deutschland

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

### **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 Remarks

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 HFT 3100 flow rate 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**.

Incorrect use or interference by anyone other than HYDAC personnel will cause all warranty claims and ATEX, IECEx und CSA approvals to become null and void.

## 2 Function

The flow rate signal measured by the sensor is converted into an analog 4..20 mA signal which is proportional to the flow rate. In addition with the analog output of the measured value, digital communication is possible by means of the HART protocol

## 3 Installation and commissioning Information

The unit should be mounted directly to the hydraulic system, inside a straight piece of piping. It should be avoided to place the unit behind any curvatures, branching's or valves. In case of a requested repeatability of 1 %, the length of the region of steady flow at the flow-in side must be 10-times the nominal diameter and 5-times the outflow side. At a requested repeatability of < 1 % these stretches must even be doubled.

To avoid mechanical damage to the flow transmitter due to vibrations or knocks, the mechanical process connection may not be firmly mounted by means of rigid tubing on both sides. In this case, flexible pieces of tubing on one side of the flow transmitter have to be used to allow decoupling. Flow transmitters with electrical connection ½-14 NPT or M20x1,5 conduit: If the electrical connection is realized according to the CSA standards by means of a Conduit, flexible conduit connections must be used to allow decoupling in case of vibrations or knocks.

The pipe have to be filled with liquid permanent, air in the system falsify the measurement result.

The piping system should be flushed before installation to avoid solid objects from getting into the turbine. The maximum permissible particle size of dirt contamination may be 0.1 mm for the measuring range 1.2..20 l/min and 0.3mm for the measuring ranges 6..60 l/min, 15..300 l/min and 40..600 l/min. Contamination by fibrous materials must be absolutely avoided. The viscosity of the fluid may not exceed 100 cSt max., as high viscosities may damage the turbine. The turbines were calibrated for a viscosity of 30 cSt. In case of viscosity deviations of more than +/- 5 cSt., non-linear deviations become more and more likely (approx. 2.5 % at +/- 20 cSt).

When the transmitters are used according to North American approvals, the use of a conduit system at the ½-14 NPT or M20x1,5 thread at the electrical connection is mandatory, also in the zone system.

The installation must be carried out by qualified personal in accordance with the relevant regulations pertaining to potentially explosive environments, e.g. IEC / EN 60079-14.

The turbines of the serie HFT 3100 HART carry the **CE** - and **UK CA** - mark. The certificate of conformity can be found in the annex.

The requirements of the standards (see technical data) cannot be satisfied unless the flow rate transmitter housing is properly grounded via the mechanical connection, the ½-14 NPT or M20x1.5 conduit or the ground terminal which is located at the outside of the connection head. 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 devices must be grounded during installation.

The suitability of the grounding shall be subject to the acceptance of the local inspection authority having jurisdiction.

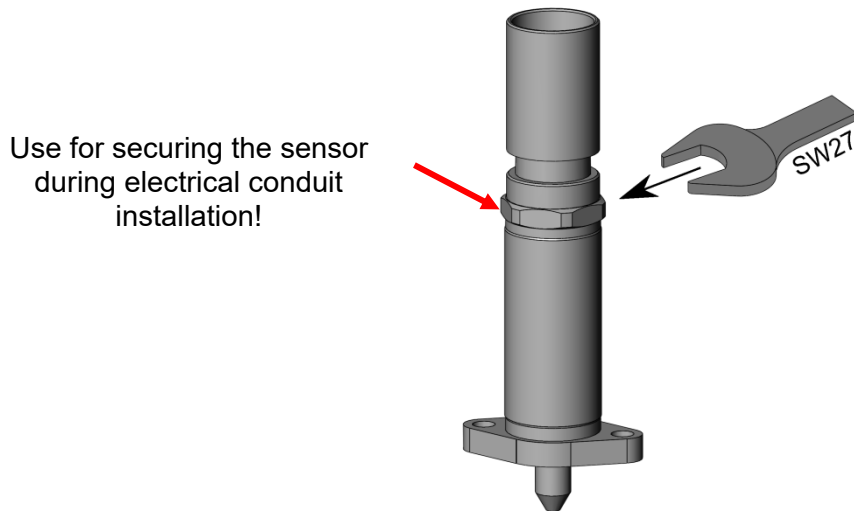
The General Safety Precautions (cf. section 5) are to be heeded in any event.

Installation per Control Drawings No. 663929 (see appendix A1)

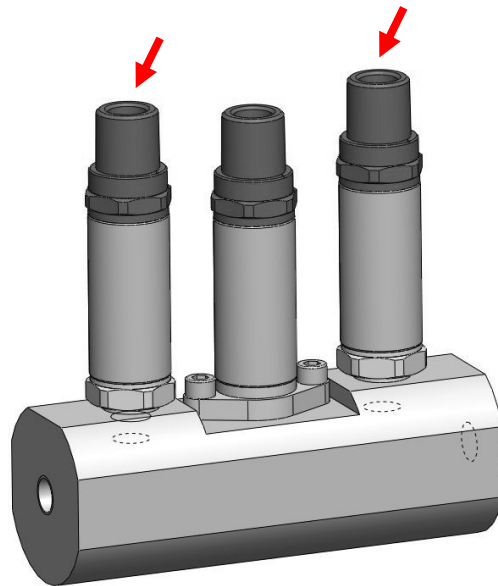
## 4 Important mounting instructions for conduit connection

### Electrical Installation

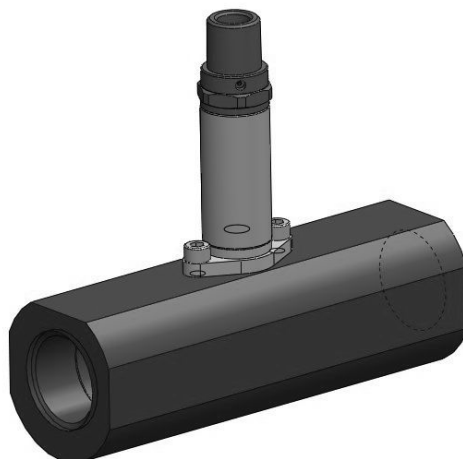
The process installation of the transmitters may only be carried out utilizing the flats on the process connection side



With Additional connection options for temperature and/or pressure sensors:



Without Additional connection options:





## 5 General safety precautions



The flow rate transmitter may no longer be used when the label becomes illegible.

The seals and gaskets which are used to install the turbine 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 media, and to be changed as needed. This check is to be conducted at least every three years. In case of continuous operation more than 1 year, it is recommended as to send back the unit for check and recalibration.

If there is damage to the unit or connecting lead, these components are to be replaced.

It is imperative that the measurement fluid is compatible with the materials used in the flow rate transmitter, similarly, the operating pressures must be adhered to without fail (for these specifications, see the "Technical data"). The "Safety relevant Information" in the certificates must also be met. The data pertaining to use in hazardous location is to be heeded in any event.

The turbine is to be protected against mechanical damage.

The flow rate transmitter has to be installed and operated in a way that electrostatic charges, caused by operation, maintenance and cleaning, can be excluded.

For the application in potentially dust-explosive areas, process-related electrostatic charge, i.e. due to fluids flowing past, has to be excluded

The devices must be grounded during installation. The suitability of the grounding shall be subject to the acceptance of the local inspection authority having jurisdiction. Limited energy powered according to CAN/UL 61010 (Clause 9.4), Class 2 UL1310, LPS (CAN/UL 60950).

Note for use for electrical connection in general (except connection head aluminum, model code character J):

- For Class I, II and III: Seal not required.

Note for use for electrical connection" integrated cable" with model code character 9, G, U and W:

- The installation is to be carried out by a properly qualified specialist in accordance with the pertinent regulations pertaining to potentially explosive environments (e.g. IEC / EN 60079-14).
- A fixed installation is required.

Note for use for electrical connection by using e.g. a connection head or junction box.

In general, when transmitters are connected to a junction box or connection head always respect the schedule of limitations.

The certificates for devices with connection head assembled from HYDAC Electronic (model code character J and Q) are supplied as an appendix.

Excerpt of the certificates from the manufacturers Limatherm and Pushna as example for schedule of limitations:

- Aluminum connection head (model code character J), manufacturer Limatherm, series XD-AD:
  - Excerpt CSA certificate:  
*"For Class I Group A and for Class I Zone 1 installation a conduit seal is required within 18 inches of enclosure"*
  - Excerpt ATEX / IECEx certificate:  
*"No. 2 from Schedule of limitations: For Information on the dimensions of the flameproof joints the manufacturer shall be contacted"*
- Stainless steel connection head (model code character Q), manufacturer Pushna, series 1016 PSEM
  - Excerpt CSA certificate:  
*"Open circuit before removing cover"*

- Excerpt ATEX / IECEx certificate:

*“No. 8 from Schedule of limitations: Consult the manufacturer if dimensional information on the flameproof joints is necessary”*

Important note for the use in mining applications:



The chemical resistance for transmitters with electrical conduit connection with single leads or jacketed cable is not tested for the use in mining applications according to ATEX and IECEx equipment group I.

When used in mining applications a conduit hose or pipe is to be installed at the ½-14 NPT or M20x1.5 electrical connection and the cable or leads are to run inside the conduit until an area is reached which is not contaminated with chemicals.

## 6 Technical Data

### 6.1 HFT 3100

Input data						
Measuring ranges and operating pressure						
HFT 31XX- F21-0020	1.2 .. 20,0 l/min	420 bar	0.32 .. 5.28 gpm	6090 psi		
HFT 31XX- F21-0060	6.0 .. 60,0 l/min	420 bar	1.59 .. 15.85 gpm	6090 psi		
HFT 31XX- F21-0300	15.0 .. 300,0 l/min	420 bar	3.96 .. 79.25 gpm	6090 psi		
HFT 31XX- F21-0600	40.0 .. 600,0 l/min	420 bar	10.57 .. 185.5 gpm	6090 psi		
Mechanical connection (recommended tightening torque)						
HFT 31XX- F21-0020	G <sup>1/4</sup> (35 Nm)	1/2 NPT (2.0-3.0 turns)	SAE 8 (60 Nm)			
HFT 31XX- F21-0060	G <sup>1/2</sup> (65 Nm)	1/2 NPT (2.0-3.0 turns) 1 NPT (1.5-2.5 turns)	SAE 14 (140 Nm)			
HFT 31XX- F21-0300	G <sup>1 1/4</sup> (240 Nm)	1 1/2 NPT (1.5-2.5 turns)	SAE 20 (290 Nm)			
HFT 31XX- F21-0600	G <sup>1 1/2</sup> (290 Nm)	1 1/2 NPT (1.5-2.5 turns)	SAE 24 (325 Nm)			
Additional connection options <sup>1)</sup>	2x G1/4 A ISO 1179-2 or 2x 9/16-18 UNF 2B (SAE6 female) threads for pressure and/or temperature sensors with corresponding approval.					
Parts in contact with medium	Stainless steel 1.4404, 1.4460, tungsten carbide					
Output data						
Output signal, permitted load resistance	4 .. 20 mA, 2-conductor, with HART protocol RL <sub>max</sub> = (UB - 12 V) / 20 mA [kΩ] for HART communication min. 250 Ω HART communication acc. to HART 7 specifications HART Common Practice Commands, e.g. altering of measuring range limits (see table)					
Accuracy	≤ 2 % of the actual value					
Ambient conditions						
Operating/ Ambient / Fluid temperature range <sup>2)</sup>	T6, T110°C Ta = -40 .. +60 °C [-40.. +140 °F] T5, T120°C Ta = -40 .. +70 °C [-40.. +158 °F]					
Storage temperature range	-40 .. +100 °C [-40.. +212 °F]					
CE mark, UK CA - mark	EN 61000-6-1 /-2 / -3 /-4; EN 61079-0 / -1 / 31					
Vibration resistance acc. to DIN EN 60068-2-6 at 10 ..500Hz	≤ 10 g ≤ 5 g with connection head					
Protection class to ISO 20653 <sup>3)</sup> to IEC 60529	IP 68 (versions with connection head), IP 69 IP 6K9K					
Other data						
Supply voltage <sup>4)</sup>	12 .. 30 V DC					
Residual ripple supply voltage	According to FSK Physical Layer Specification (HCF_SPEC_054)					
Measuring medium	Hydraulic oil, water based fluid					
Viscosity range	1 .. 100 cSt					
Calibration viscosity	30 cSt					
Weight						
HFT 318X- F21-0020	approx. 2.5 kg					
HFT 319X- F21-0060	approx. 4.0 kg					
HFT 31HX- F21-0300	approx. 5.5 kg					
HFT 31BX- F21-0600	approx. 7.0 kg					

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

<sup>1)</sup> Not available for size 1.2 .. 20.0 l/min

<sup>2)</sup> T120°C only with electrical connection: see 1st page

<sup>3)</sup> For connection head: Cable gland must cover IP 68 and the ½-14 NPT thread must be sealed by thread sealant.

<sup>4)</sup> "Limited Energy" powered according to CAN/UL 61010 (Clause 9.4), Class 2 UL1310, LPS (CAN/UL 60950)

### 6.2 Measuring Range Limits:

By means of HART Common Practice Commands, it's possible to adjust the following measuring ranges:

	Lower measuring range limit		Upper measuring range limit		Measuring span	
	min	max	min	max	min	max
HFT 3100	0 % FS	75 % FS	25 % FS	100 % FS	25 % FS	100 % FS

### 6.3 Protocol Data

HART Version: 7

Manufacturer Code: 0x605E

Manufacturer String: HYDAC ELECTRONIC

Device Type Code: 0xE0FE Variant with flow rate as PV and as the only measured value

## 7 Model code to identify the delivered part

HFT 31 XX - F21 - XXXX - S - X - X - 000 (XXX)

### Mechanical process connection

1 = G 1/4"	only for measuring range:	1.2 .. 20 l/min
3 = G 1/2"	only for measuring range:	6 .. 60 l/min
6 = G 1 1/4"	only for measuring range:	15 .. 300 l/min
7 = G 1 1/2"	only for measuring range:	40 .. 600 l/min
8 = SAE 8	only for measuring range:	1.2 .. 20 l/min
9 = SAE 14	only for measuring range:	6 .. 60 l/min
H = SAE 20	only for measuring range:	15 .. 300 l/min
B = SAE 24	only for measuring range:	40 .. 600 l/min
C = 1/2 NPT	only for measuring ranges:	1.2 .. 20 l/min 6 .. 60 l/min
D = 1 NPT	only for measuring range:	6 .. 60 l/min
E = 1 1/2 NPT	only for measuring ranges:	15 .. 300 l/min 40 .. 600 l/min

### Electrical connection

9 = 1/2-14 NPT conduit (male thread), single leads  
 G = 1/2-14 NPT conduit (male thread), jacketed cable  
 J = Connection head (aluminum)  
 Q = Connection head (stainless steel)  
 U = M20x1.5 conduit (male thread), jacketed cable  
 W = M20x1.5 conduit (male thread), single leads

### Output signal

F21 = 4 .. 20 mA, 2-conductor, with HART protocol (4 mA = 0 l/min)

### Measuring Ranges

0020 = 1.2.. 20,0 l/min (0.32 .. 5.28 gpm)  
 0060 = 6.0.. 60,0 l/min (1.59 .. 15.85 gpm)  
 0300 = 15.0..300,0 l/min (3.96 .. 79.25 gpm)  
 0600 = 40.0..600,0 l/min (10.57 .. 185.5 gpm)

### Housing material

S = Stainless steel

### Housing design

1 = Without additional holes (measuring range 0020)  
 2 = With two additional female threads G1/4 ISO 1179-2 (measuring ranges 0060,0300,0600)  
 3 = With two additional female threads 9/16-18 UNF 2B (SAE6) (measuring ranges 0060,0300,0600)

### Approval

D = CSA Explosion Proof (seal not required)  
 ATEX Flame Proof  
 IECEx Flame Proof

### Modification number

000 = Standard

On instruments with a different modification number, please read the label or the technical amendment details supplied with the instrument.

### Cable length

Shown in m or inch

### 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

x	Manufacturing date	e.g. : 3 → 2023
yy	Calendar week	e.g. : 11 → CW 11
k	Change control status	e.g. : - , A, B,...
zzzzzz	Sequential serial number	e.g. : 111111

**HFT 31HG-F21-0300-S-3-D-000 (72")**

Supply: 18..30 V **BN:** +Signal  
 Range: 300 l/min **WH:** -Signal  
 Signal: 4..20 mA  
 MWP: Flow Rate/HART 6090 psi

**KEMA 10ATEX0100X**  
 I M2 Ex db I Mb  
 II 2G Ex db IIC T6...T5 Gb  
 II 2D Ex tb IIIC T110°C Db  
**IECEX KEM 10.0053X**

**CSA MC: 224264**  
**CSA 19.2032612X**  
 CL I Gp A,B,C,D T6...T5  
 CL II Gp E,F,G T110°C  
 CL III Type 4

CL I Zn 1 AEx db IIC T6...T5 Gb  
           Ex db IIC T6...T5 Gb  
       Zn 21 AEx tb IIIC T110°C Db  
           Ex tb IIIC T110°C Db

MADE IN GERMANY  
 Hauptstrasse 27  
**HYDAC ELECTRONIC**  
 D-66128 Saarbrücken

925750  
**SN: 311A111111**

Protection concept  
 Consigne de protection  
 -> Operating Instruction  
 -> 669908

0158

### 9 Pin connection

Conduit with single leads  
or connection head (screw terminal)

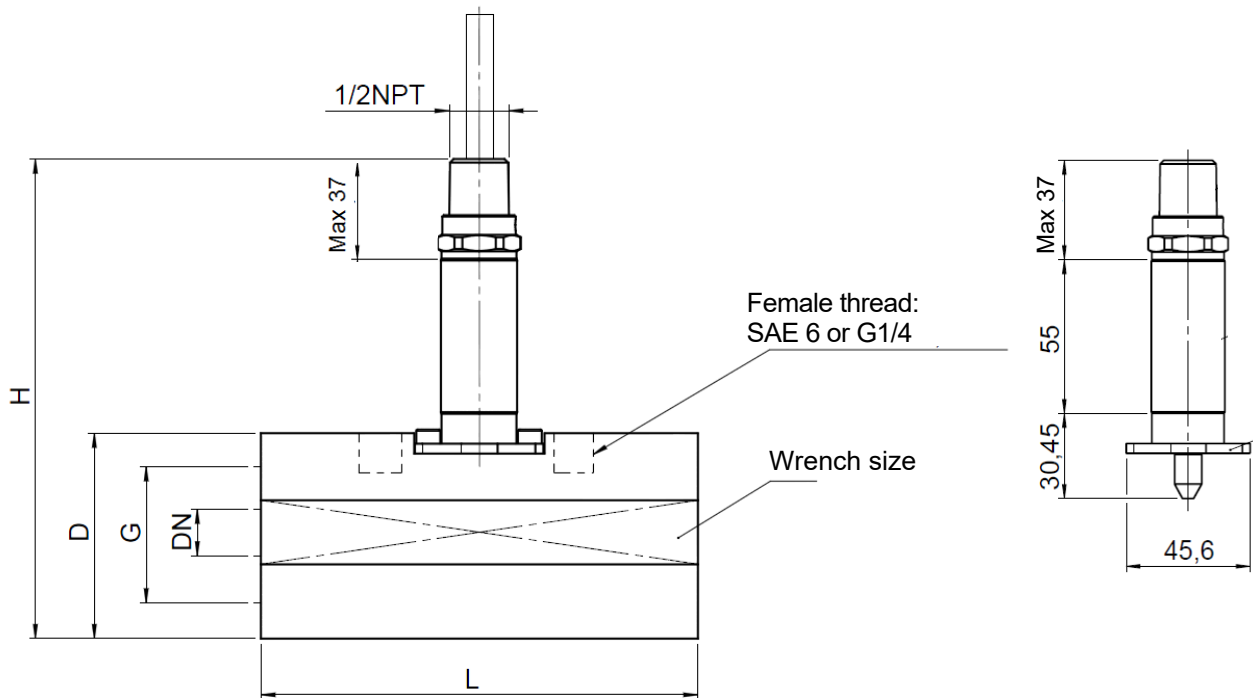
Conduit (jacketed cable)

Lead	
red	Signal +
black	Signal -
green-yellow	housing

Lead	
brown	Signal +
white	Signal -
green	n.c.
yellow	n.c.

## 10 Dimensions

Dimensions with transmitter with jacketed cable



Without additional connection options for temperature and/or pressure sensors:

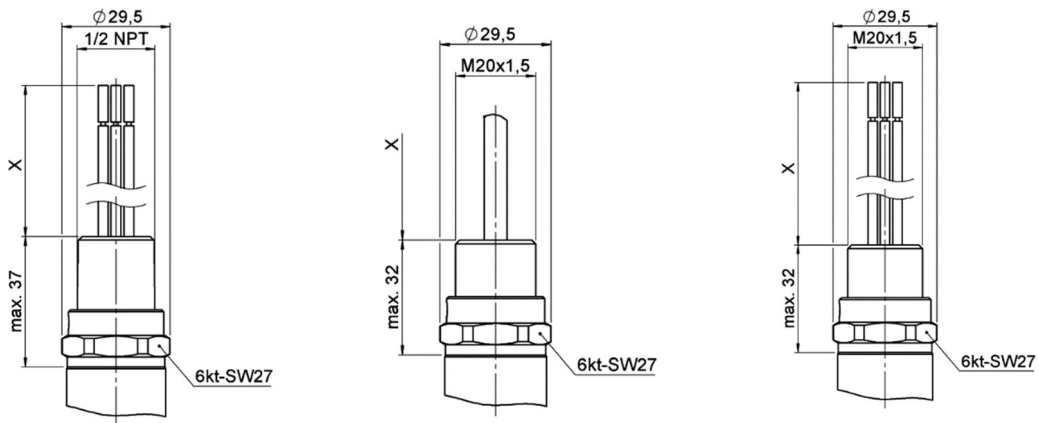
Model	Measuring range	L	H	D / SW	G	Torque rating	DN
HFT 31XX-F21-0020	1.2 .. 20 l/min	117 mm	158 mm	60 / 56 mm	G ¼ "	35 Nm	7 mm
HFT 31XX-F21-0020	1.2 .. 20 l/min	117 mm	158 mm	60 / 56 mm	½ NPT	2.0 – 3.0 turns*	7 mm
HFT 31XX-F21-0020	1.2 .. 20 l/min	117 mm	158 mm	60 / 56 mm	SAE 8 (3/4 -16 UNF 2B)	60 Nm	7 mm

With Additional connection options for temperature and/or pressure sensors:

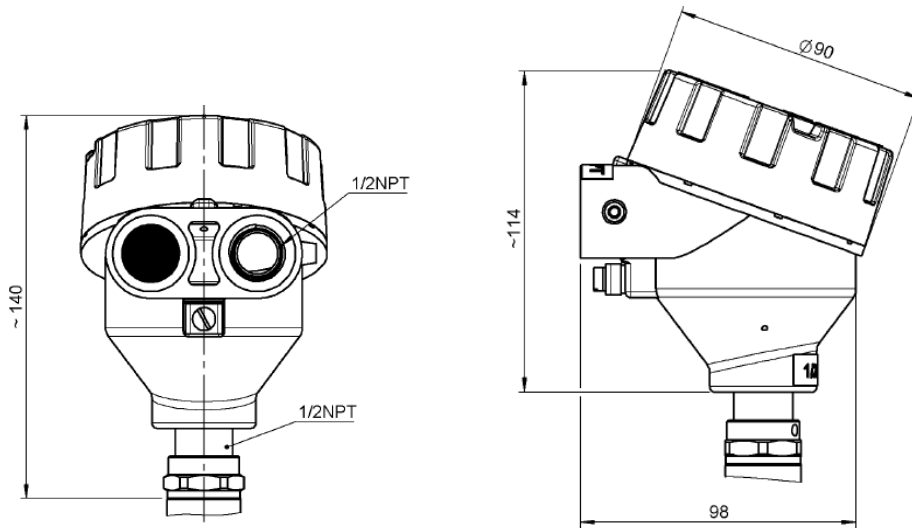
Model	Measuring range	L	H	D / SW	G	Torque rating	DN	Thread
HFT 31XX- F21-0060	6 .. 60 l/min	144 mm	160 mm	63 / 60 mm	G ½ "	65 Nm	11 mm	G1/4
HFT 31XX- F21-0300	15 .. 300 l/min	155 mm	173 mm	75.5 / 72 mm	G 1¼ "	240Nm	22 mm	G1/4
HFT 31XX- F21-0600	40 .. 600 l/min	181mm	178 mm	81 / 76 mm	G 1½ "	290 Nm	30 mm	G1/4
HFT 31XX- F21-0060	6 .. 60 l/min	144 mm	160 mm	63 / 60 mm	½ NPT	2.0 – 3.0 turns*	11 mm	SAE6
HFT 31XX- F21-0060	6 .. 60 l/min	144 mm	160 mm	63 / 60 mm	1 NPT	1.5 – 2.5 turns*	11 mm	SAE6
HFT 31XX- F21-0300	15 .. 300 l/min	155 mm	173 mm	75.5 / 72 mm	1 ½ NPT	1.5 – 2.5 turns*	22 mm	SAE6
HFT 31XX- F21-0600	40 .. 600 l/min	181 mm	178 mm	81 / 76 mm	1 ½ NPT	1.5 – 2.5 turns*	30 mm	SAE6
HFT 31XX- F21-0060	6 .. 60 l/min	144 mm	160 mm	63 / 60 mm	SAE 14 (1 3/16 -12 UN 2B)	140 Nm	11 mm	SAE6
HFT 31XX- F21-0300	15 .. 300 l/min	155 mm	173 mm	75.5 / 72 mm	SAE 20 (1 5/8 -12 UN 2B)	290 Nm	22 mm	SAE6
HFT 31XX- F21-0600	40 .. 600 l/min	181 mm	178 mm	81 / 76 mm	SAE 24 (1 7/8 -12 UN 2B)	325 Nm	30 mm	SAE6

Note: \*Do not loosen after tightening (e.g. for alignment of the device), as the tightness of the sealing cannot be ensured when doing so.

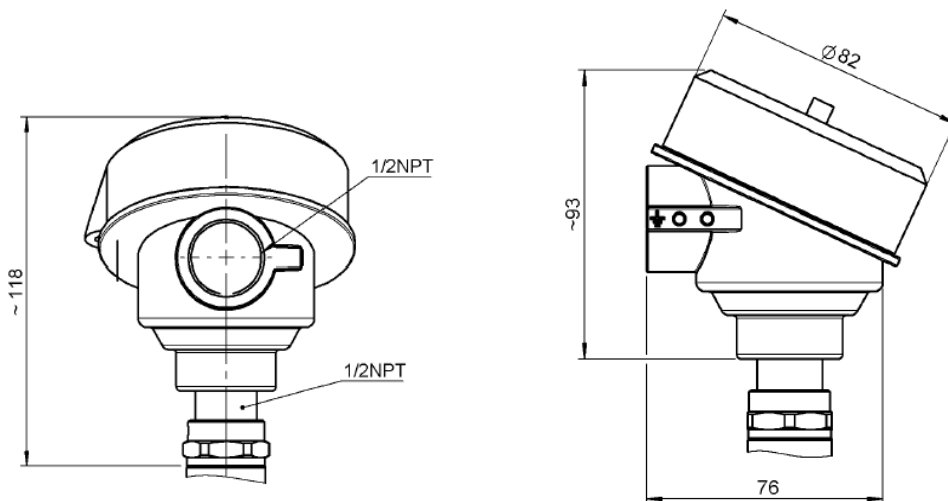
Electrical connection variants



Connection head aluminum:



Connection head stainless steel:



**HYDAC ELECTRONIC GMBH**

Hauptstraße 27  
D-66128 Saarbrücken  
Germany

Web: [www.hydac.com](http://www.hydac.com)  
E-Mail: [electronic@hydac.com](mailto:electronic@hydac.com)  
Phone: +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 Saarbrücken  
Germany

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

**NOTE**

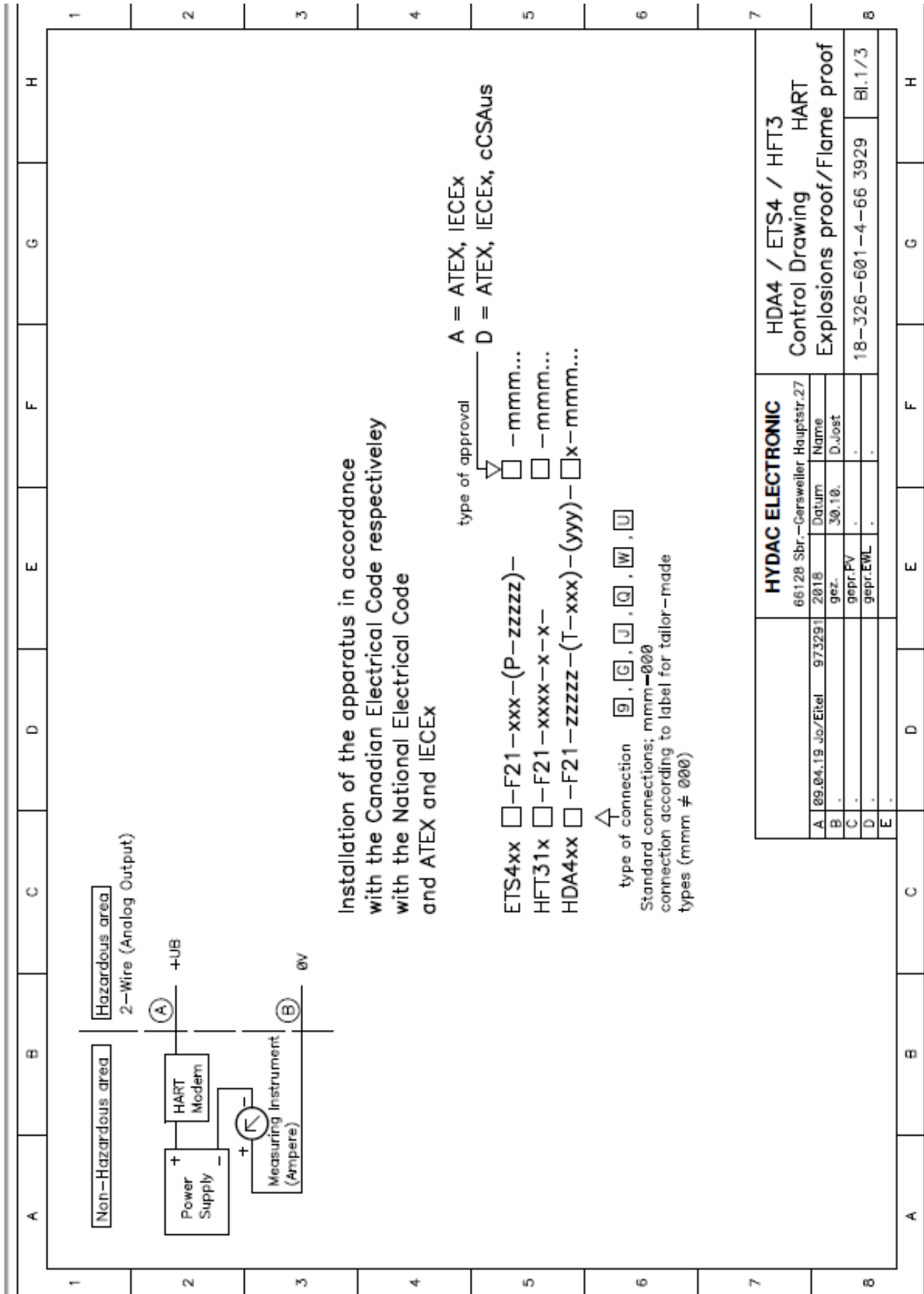
The information and particulars provided in this manual apply to the operating conditions and applications described herein. For applications or operating conditions not described, please contact the relevant technical department.

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

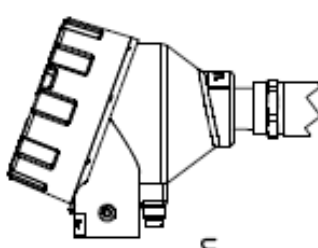
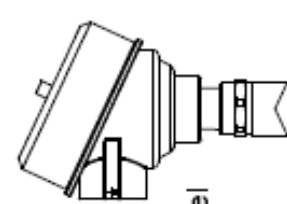
Subject to technical modifications.



### A1 Kontrollzeichnungen / Control drawings



	A	B	C	D	E	F	G	H																																										
1	<p><b>Mise à la terre:</b> Les exigences liées aux normes (voir spécification techniques) ne seront respectées, que si le boîtier du capteur est correctement relié à la terre. La compensation de potentiel, doit nécessairement être réalisée. Si des prises MiniMess sont utilisées, le boîtier de chacune d'elles doit être mis à la terre séparément.</p> <ul style="list-style-type: none"> <li>- L'appareil (capteur) doit être mis à la terre pendant l'installation.</li> <li>- La conformité de la mise à la terre, doit être approuvée par l'organisme local d'inspection, ayant juridiction.</li> <li>- Si un fil vert est disponible, celui-ci peut être utilisé pour une mise à la terre supplémentaire de l'appareil, par contre ce fil ne peut pas être utilisé seul en tant que connexion à la terre.</li> </ul>																																																	
2	<p><b>Grounding:</b> The requirements of the standards (see technical specifications) cannot be satisfied unless the unit's housing is properly grounded. Potential equalization has to be provided. When using hose mounting, the housing has to be grounded separately.</p> <ul style="list-style-type: none"> <li>-The devices must be grounded during installation.</li> <li>-The suitability of the grounding shall be subject to the acceptance of the local inspection authority having jurisdiction.</li> <li>-if a green wire is available, it can be used additionally for grounding, but may not be used on its own as the grounding connection</li> </ul>																																																	
3	<p>9, G 1/2" NPT male conduit</p>																																																	
4	<table border="1"> <tr> <td> <p><b>CCSAUS</b> Class I Groups A,B,C,D, T6, T5 Class II, Groups E,F,G, T110°C, 120°C Class III Type 4 Zone 1 AEx db IIC T6, T5 Gb Ex db IIC T6, T5 Gb Zone 21 AEx tb IIC T110°C, 120°C Db Ex tb IIC T110°C, 120°C Db</p> </td> <td> <p><b>ATEX</b> I M2 Ex db I Mb II 2G Ex db IIC T6, T5 Gb II 2D Ex tb IIC T110°C, 120°C Db</p> </td> </tr> <tr> <td> <p>Seal not required Aucun joint d'étanchéité n'est requis</p> </td> <td> <p><b>IECEX</b> Ex db I Mb T6, T5 Gb Ex db IIC T110°C, 120°C Db</p> </td> </tr> </table>								<p><b>CCSAUS</b> Class I Groups A,B,C,D, T6, T5 Class II, Groups E,F,G, T110°C, 120°C Class III Type 4 Zone 1 AEx db IIC T6, T5 Gb Ex db IIC T6, T5 Gb Zone 21 AEx tb IIC T110°C, 120°C Db Ex tb IIC T110°C, 120°C Db</p>	<p><b>ATEX</b> I M2 Ex db I Mb II 2G Ex db IIC T6, T5 Gb II 2D Ex tb IIC T110°C, 120°C Db</p>	<p>Seal not required Aucun joint d'étanchéité n'est requis</p>	<p><b>IECEX</b> Ex db I Mb T6, T5 Gb Ex db IIC T110°C, 120°C Db</p>																																						
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5	<p>W, U M20x1,5 male conduit</p>																																																	
6	<p>9 = single leads G = jacketed cable</p> <p>W = single leads U = jacketed cable</p>																																																	
7	<p>For detailed wiring information see product label</p>																																																	
8	<table border="1"> <tr> <td colspan="2"><b>HYDAC ELECTRONIC</b></td> <td colspan="2"><b>HDA4/ETS4/HFT3</b></td> <td colspan="2"><b>HART</b></td> </tr> <tr> <td colspan="2">66128 Sbr - Gersweiler Hauptstr.27</td> <td colspan="2">Control Drawing</td> <td colspan="2">Explosion proof/Flame proof</td> </tr> <tr> <td>A</td> <td>09.04.19</td> <td>Jo/Eitel</td> <td>973291</td> <td>Datum</td> <td>Name</td> </tr> <tr> <td>B</td> <td>.</td> <td>.</td> <td>30.10.</td> <td>gez.</td> <td>D.Jost</td> </tr> <tr> <td>C</td> <td>.</td> <td>.</td> <td>.</td> <td>gepr.FV</td> <td>.</td> </tr> <tr> <td>D</td> <td>.</td> <td>.</td> <td>.</td> <td>gepr.EWL</td> <td>.</td> </tr> <tr> <td>E</td> <td>.</td> <td>.</td> <td>.</td> <td>.</td> <td>.</td> </tr> </table> <p>T6, T5, T110°C, T120°C if noted on label si indiqué sur l'étiquette</p> <p>Ambient Temperature max. +60°C (T6, T110°C) Ambient Temperature max. +70°C (T5, T120°C)</p> <p>18-326-601-4-66 3929 Bl.2/3</p>								<b>HYDAC ELECTRONIC</b>		<b>HDA4/ETS4/HFT3</b>		<b>HART</b>		66128 Sbr - Gersweiler Hauptstr.27		Control Drawing		Explosion proof/Flame proof		A	09.04.19	Jo/Eitel	973291	Datum	Name	B	.	.	30.10.	gez.	D.Jost	C	.	.	.	gepr.FV	.	D	.	.	.	gepr.EWL	.	E	.	.	.	.	.
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D	.	.	.	gepr.EWL	.																																													
E	.	.	.	.	.																																													

	A	B	C	D	E	F	G	H																								
1	<p>Explosion Proof cCSAus; Enclosures for use in                  Class I Div. 1 Groups A,B,C,D, T6, T5                  Class II Div. 1 Groups E,F,G, T110°C, T120°C                  Class III                  Type 4                  Class I Zone1 AEx db IIC T6,T5 Gb                  Ex db IIC T6,T5 Gb</p>		<p>For Class I Group A installation and for Zone                  Conduit seal is required within 18 inches of enclosure                  Pour une installation de Classe I Groupe A et pour Zone                  A partir d'une distance de 18 pouces du boîtier, un joint                  d'étanchéité doit être installé</p>		<p>J: Aluminium</p> 		<p>HART</p>																									
2	<p>ATEX                  II 2G Ex db IIC T6,T5 Gb                  II 2D Ex tb IIIC T110°C, 120°C Db</p>																															
3	<p>IECEX                  Ex db IIC T6,T5 Gb                  Ex tb IIIC T110°C, T120°C Db</p>																															
4	<p>Explosion Proof cCSAus; Enclosures for use in                  Class I Div. 1 Groups B,C,D, T6, T5                  Class II Div. 1 Groups E,F,G, T110°C, T120°C                  Class III                  Type 4</p>		<p>Open circuit before removing cover                  Ouvrir le Circuit avant d'enlever couvercle</p>																													
5	<p>ATEX                  II 2G Ex db IIC T6,T5 Gb                  II 2D Ex tb IIIC T110°C, 120°C Db</p>						<p>Q: Stainless steel</p>																									
6	<p>IECEX                  Ex db IIC T6,T5 Gb                  Ex tb IIIC T110°C, 120°C Db</p>						<p>Ambient Temperature                  max. +60 C (T6; T110° C)                  max. +70 C (T5; T120° C)</p>																									
7	<p>T6, T5, T110°C, T120°C if noted on label                  si indiqué sur l'étiquette</p>						<p>HDA4/ETS4/HFT3 HART                  Control Drawing                  Explosions proof/Flame proof                  18-326-601-4-66 3929 Bl.3/3</p>																									
8	A	B	C	D	E	F	G	H																								
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E	.	.	.																													

## A2 Zertifikat ATEX / Certificate ATEX



# CERTIFICATE

## (1) EU-Type Examination

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

(3) EU-Type Examination Certificate Number: **KEMA 10ATEX0100 X** Issue Number: **6**

(4) Product: **Pressure Transducers, Pressure Switches, Temperature Transducers, Flow Rate Transmitters, Bladder Integrity Sensors and Connection heads**

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

(6) Address: **Hauptstraße 27, 66128 Saarbrücken-Gersweiler, 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/ExTR10.0022/06.

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

<b>EN IEC 60079-0 : 2018</b>	<b>EN 60079-1 : 2014</b>	<b>EN 60079-31 : 2014</b>
------------------------------	--------------------------	---------------------------

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 2	Ex db I Mb
II 2 G	Ex db IIC T6...T4 Gb
II 2 D	Ex tb IIIC T110 °C...T130 °C Db

Date of certification: 17 august 2022

DEKRA Certification B.V.



L.G. van Schie  
Certification Manager



® Integral publication of this certificate and adjoining reports is allowed. This Certificate may only be reproduced in its entirety and without any change.

DEKRA Certification B.V. Meander 1051, 6825 MJ Arnhem P.O. Box 5185, 6802 ED Arnhem The Netherlands  
T +31 88 98 83000 F +31 88 98 83100 www.dekra-product-safety.com Registered Arnhem 09085396

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(13) **SCHEDULE**

(14) to EU-Type Examination Certificate KEMA 10ATEX0100 X Issue No. 6

(15) **Description**

**HDA 4xxx**

Electronic Pressure Transducer with analogue output.

Depending on the applied pressure on the sensor cell a proportional output signal is generated. One version has an additional temperature sensor.

It provides an analogue signal or analogue signal combined with a HART digital protocol.

**EDS 4xxx**

Electronic Pressure switch.

Depending on the applied pressure on the sensor cell a proportional internal signal is generated. Depending on the factory set fixed value or programmable set point an electronic switch changes its status.

**ETS 4xxx**

Temperature Transducer

Depending on the applied temperature on the sensor a proportional output signal is generated. One version has an additional pressure sensor.

It provides an analogue signal or analogue signal combined with a HART digital protocol.

**HFT 31xx**

Flow Rate Transmitter

An impellor driven by the speed of the flow of the liquid or gas through a turbine generates a signal pick up by a proximity switch, converted to a linear analogue current signal and is available via a HART interface.

**BIS 1xxx**

Bladder Integrity Sensor

The bladder status signal is provided as a switching signal. Depending on the version, the temperature or pressure signal measured by the sensor is converted into a proportional analogue current signal and is available via a HART interface.

**HPT 5xx**

Electronic differential pressure transmitter with analogue output.

Depending on the applied differential pressure a piston with integrated magnet is shifted linearly. A Hall sensor is detecting the position and passes on the position to the evaluation electronics which calculates the output signal.

**HPS 5xx**

Same as HPT 5xx but with an output with an electronic switch.

**Optional Connection Heads**

Limatherm Type XD-AD and Pushna Type 1016 PSEM Ex d and Ex t certified enclosures.

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Form 227A  
Version 2 (2019-06)

(13) **SCHEDULE**

(14) to EU-Type Examination Certificate KEMA 10ATEX0100 X

Issue No. 6

**Type Codes**

Pressure Transducer	HDA 4abc-d-eeee(e)-fg-hhh(psi)iiij HDA 4aZc-d-eeee(e)-kkk-fg-hhh(psi)iiij HDA 4abc-F21-eeee(e)-fg-hhh(iiij) HDA 4abc-F21-eeee(e)-T-III-fg-hhh(iiij)  HDA 4aZc-F21-eeee(e)-kkk-fg-hhh(iiij)	Standard With temperature measurement With front flush membrane
Pressure Switch	EDS 4abc-dddd(d)-ef-gh-iiii(psi)kkkl	
Temperature Transducer	ETS 45ab-c-d-eee-fff-gggh ETS 4abc-F21-kkk-f-hhh(iiij) ETS 4abc-F21-kkk-P-eeee(e)-fg-hhh(iiij)	Standard With pressure measurement
Flow Rate Transmitter	HFT 31bc-F21-eeee-S-X-f-hhh(iiij)	
Bladder Integrity Sensor	BIS 1abc-F21-eeee(e)-fg-hhh(iiij)	
Difference Pressure Transmitter	HPT 50c-d-eeee-S-f-hhh(psi)iiij HPS 50c-pppp-ef-S-g-hhh(psi)iiij	

**Rated ambient temperature range**

xxx-xxxx-F21-xxx  
-40 °C to +60 °C for T6 and T110 °C  
-40 °C to +70 °C for T5 and T120 °C

**EDS with max. 2 x 1,2 A output signal**

-40 °C to +80 °C for T4  
-40 °C to +60 °C for T110 °C  
-40 °C to +70 °C for T120 °C  
-40 °C to +80 °C for T130 °C

**Other**

-40 °C to +60 °C for T6 and T110 °C  
-40 °C to +70 °C for T120 °C  
-40 °C to +80 °C for T5 and T130 °C

For details of the variables refer to Annex 1.

**Electrical data**

Supply Voltage: 30 Vdc / 6 Vdc for 10%..90% ratiometric  
Input Current: 25 mA or 1,3 A

For details refer to Annex 1.

**Installation instructions**

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

(16) **Report Number**

No. NL/KEM/ExTR10.0022/06.

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Form 227A  
Version 2 (2019-06)

(13) **SCHEDULE**

(14) to EU-Type Examination Certificate KEMA 10ATEX0100 X Issue No. 6

(17) **Specific conditions of use**

The ambient temperature range of the equipment is as indicated at 'Rated ambient temperature range' above.

When used in mining applications a conduit hose or pipe is to be installed at the ½ 14 NPT or M20x1,5 electrical connection and the cable or leads are to run inside the conduit until an area is reached which is not contaminated with chemicals.

Electrostatic charging on non-metallic parts shall be avoided. See installation instructions for details.

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

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. NL/KEM/ExTR10.0022/06.

(20) **Certificate history**

Issue 1 - 212423500	Initial certificate.
Issue 2 - 215511300	Minor constructional changes and addition of Ex tb
Issue 3 - 216122900	Minor constructional changes, model Type BIS 1000-F added and Name change of the Pressure Transmitter.
Issue 4 - 218185700	Update to the latest standards, changed ambient temperature range and Addition of new type of Temperature Transducer.
Issue 5 - 222806200	Addition of: transmitter HPT500 and HPS500, electrical connection M20x1,5 and optional connection heads; Adjustment of type/model codes
Issue 6 - 226247500	Assesment per EN IEC 60079-0: 2018 Minor constructional changes


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Form 227A  
Version 2 (2019-06)

## A3 Zertifikat IECEx / Certificate IECEx

		<h1>IECEx Certificate of Conformity</h1>	
<b>INTERNATIONAL ELECTROTECHNICAL COMMISSION</b> IEC Certification System for Explosive Atmospheres <small>for rules and details of the IECEx Scheme visit <a href="http://www.iecex.com">www.iecex.com</a></small>			
Certificate No.:	<b>IECEx KEM 10.0053X</b>	Page 1 of 5	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 6	Issue 5 (2019-05-27)
Date of Issue:	2022-08-17		Issue 4 (2015-09-04)
Applicant:	<b>HYDAC Electronic GmbH</b> Hauptstraße 27 68128 Saarbrücken-Gersweiler Germany		Issue 3 (2014-02-06)
Equipment:	<b>Pressure Transducers, Pressure Switches, Temperature Transducers, Flow Rate Transmitters, Bladder Integrity Sensors and Connection heads</b>		Issue 2 (2012-11-23)
Optional accessory:			Issue 1 (2011-03-31)
Type of Protection:	<b>Ex db, Ex tb</b>		Issue 0 (2010-08-05)
Marking:	<b>Ex db I Mb Ex db IIC T6...T4 Gb Ex tb IIIC T110 °C...T130 °C Db</b>		
Approved for issue on behalf of the IECEx Certification Body:		<b>L.G. van Schie</b>	
Position:		<b>Certification Manager</b>	
Signature: (for printed version)			
Date: (for printed version)		2022-08-17	
<ol style="list-style-type: none"> <li>This certificate and schedule may only be reproduced in full.</li> <li>This certificate is not transferable and remains the property of the issuing body.</li> <li>The Status and authenticity of this certificate may be verified by visiting <a href="http://www.iecex.com">www.iecex.com</a> or use of this QR Code.</li> </ol>			
Certificate issued by:			
<b>DEKRA Certification B.V.</b> Meander 1051 6825 MJ Arnhem Netherlands			



		<h2>IECEx Certificate of Conformity</h2>	
Certificate No.:	<b>IECEx KEM 10.0053X</b>	Page 2 of 5	
Date of issue:	<b>2022-08-17</b>	Issue No: 6	
Manufacturer:	<b>HYDAC Electronic GmbH</b> Hauptstraße 27 66128 Saarbrücken-Gersweiler Germany		
Manufacturing locations:	<b>HYDAC Electronic GmbH</b> Hauptstraße 27 66128 Saarbrücken-Gersweiler Germany		
<p>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</p>			
<p><b>STANDARDS :</b>          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</p>			
<p><a href="#">IEC 60079-0:2017</a> Explosive atmospheres - Part 0: Equipment - General requirements Edition:7.0</p>			
<p><a href="#">IEC 60079-1:2014-06</a> Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d" Edition:7.0</p>			
<p><a href="#">IEC 60079-31:2013</a> Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t" Edition:2</p>			
<p>This Certificate does not indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.</p>			
<p><b>TEST &amp; ASSESSMENT REPORTS:</b>          A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:</p>			
<p>Test Report:  <a href="#">NL/KEM/ExTR10.0022/06</a></p>			
<p>Quality Assessment Report:  <a href="#">DE/BVS/QAR06.0017/13</a></p>			



## IECEX Certificate of Conformity

Certificate No.: **IECEX KEM 10.0053X**

Page 3 of 5

Date of issue: 2022-08-17

Issue No: 6

### EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

#### HDA 4xxx

Electronic Pressure Transducer with analogue output.  
Depending on the applied pressure on the sensor cell a proportional output signal is generated.  
One version has an additional temperature sensor.  
It provides an analogue signal or analogue signal combined with a HART digital protocol.

#### EDS 4xxx

Electronic Pressure switch.  
Depending on the applied pressure on the sensor cell a proportional internal signal is generated.  
Depending on the factory set fixed value or programmable set point an electronic switch changes its status.

#### ETS 4xxx

Temperature Transducer.  
Depending on the applied temperature on the sensor a proportional output signal is generated.  
One version has an additional pressure sensor.  
It provides an analogue signal or analogue signal combined with a HART digital protocol.

#### HFT 31xx

Flow Rate Transmitter.  
An impeller driven by the speed of the flow of the liquid or gas through a turbine generates a signal pick up by a proximity switch, converted to a linear analogue current signal and is available via a HART interface.

#### BIS 1xxx

Bladder Integrity Sensor.  
The bladder status signal is provided as a switching signal. Depending on the version, the temperature or pressure signal measured by the sensor is converted into a proportional analogue current signal and is available via a HART interface.

#### HPT 5xx

Electronic differential pressure transmitter with analogue output.  
Depending on the applied differential pressure a piston with integrated magnet is shifted linearly. A Hall sensor is detecting the position and passes on the position to the evaluation electronics which calculates the output signal.

#### HPS 5xx

Same as HPT 5xx but with an output with an electronic switch.

#### Optional Connection Heads

Limatherm Type XD-AD and Pushna Type 1016 PSEM Ex d and Ex t certified enclosures.

#### SPECIFIC CONDITIONS OF USE: YES as shown below:

The ambient temperature range of the equipment is as indicated at 'Rated ambient temperature range' below.

When used in mining applications a conduit hose or pipe is to be installed at the 1/2-14 NPT or M20x1.5 electrical connection and the cable or leads are to run inside the conduit until an area is reached which is not contaminated with chemicals.

Electrostatic charging on non-metallic parts shall be avoided. See installation instructions for details.



## IECEx Certificate of Conformity

Certificate No.: IECEx KEM 10.0053X

Page 4 of 5

Date of issue: 2022-08-17

Issue No: 6

### Equipment (continued):

#### Type Codes

##### Pressure Transducer

HDA4abc-d-eeee(e)-fg-hhh(psi)ij  
 HDA 4aZc-d-eeee(e)-kkk-fg-hhh(psi)ij  
 HDA 4abc-F21-eeee(e)-fg-hhh(ij) Standard  
 HDA 4abc-F21-eeee(e)-T-III-fg-hhh(ij) With temperature measurement  
 HDA 4aZc-F21-eeee(e)-kkk-fg-hhh(ij) With front flush membrane

##### Pressure Switch

EDS 4abc-dddd(d)-ef-gh-iii(psi)kkkl

##### Temperature Transducer

ETS 45ab-c-d-eee-fff-gggh  
 ETS 4abc-F21-kkk-f-hhh(ij) Standard  
 ETS 4abc-F21-kkk-P-eeee(e)-fg-hhh(ij) With pressure measurement

##### Flow Rate Transmitter

HFT 31bc-F21-eeee-S-X-f-hhh(ij)

##### Bladder Integrity Sensor

BIS 1abc-F21-eeee(e)-fg-hhh(ij)

##### Difference Pressure Transmitter

HPT 50c-d-eeee-S-f-hhh(psi)ij  
 HPS 50c-pppp-ef-S-g-hhh(psi)ij

##### Rated ambient temperature range

xxx-xxxx-F21-xxx  
 -40 °C to +80 °C for T6 and T110 °C  
 -40 °C to +70 °C for T5 and T120 °C

##### EDS with max. 2 x 1.2 A output signal

-40 °C to +80 °C for T4  
 -40 °C to +80 °C for T110 °C  
 -40 °C to +70 °C for T120 °C  
 -40 °C to +80 °C for T130 °C

##### Other

-40 °C to +80 °C for T6 and T110 °C  
 -40 °C to +70 °C for T120 °C  
 -40 °C to +80 °C for T5 and T130 °C

For details of the variables refer to Annex 1.



## IECEX Certificate of Conformity

Certificate No.: **IECEX KEM 10.0053X**

Page 5 of 5

Date of issue: 2022-08-17

Issue No: 6

**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**  
Assessment per IEC 60079-0 : 2017 Ed. 7.0  
Minor constructional changes

**Annex:**

[226247500-ExTR10.0022.06 Annex1\\_1.pdf](#)

## A4 Zertifikat CSA / Certificate CSA



# Certificate of Compliance

**Certificate:** 2032612                      **Master Contract:** 224264  
**Project:** 70194250                      **Date Issued:** July 18, 2019  
**Issued to:** Hydac Electronic GmbH  
                   Dept. ETW  
                   Hauptstrasse 27  
                   66128  
                   Saarbrücken  
                   Germany  
  
**Attention:** Alwin Eitel

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.*



Issued by:

Jens Ensminger

## PRODUCTS

**CLASS 2258 02** - PROCESS CONTROL EQUIPMENT - For Hazardous Locations  
**CLASS 2258 82** - PROCESS CONTROL EQUIPMENT - For Hazardous Locations - Certified to US Standards

Class I, Groups A, B, C and D T6 resp. T5 resp. T4A; Class II, Groups E, F and G T110°C resp. T120 °C resp. T130 °C; Class III; Type 4

Class I, Zone 1 AEx db IIC T6 resp. T5 resp. T4A Gb;

Zone 21 AEx tb IIIC T110°C resp. T120 °C resp. T130 °C Db

Ex db IIC T6 resp. T5 resp. T4A Gb; Ex tb IIIC T110°C resp. T120 °C resp. T130 °C Db



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- **Pressure Transducer - Standard**

**a** = accuracy  
**b** = mechanical connection (pressure port)  
**c** = electrical connection

**d** = signal  
**e** = pressure range

**f** = approval  
**g** = gauge type  
**h** = modification number  
**(psi)**

**I** = length of cable  
**J** = cable length definition  
 bar-version

Technical data:

Rated Supply Voltage 30 Vdc  
 Output Signal 0..10 V or 0..20 mA or 4..20 mA  
 or

Rated Supply voltage 6 Vdc  
 Output Signal 10-90% ratiometric  
 Rated Input Current 25 mA

Maximum working pressure 37 to 30000 psi (0.26 MPa to 206.8 MPa)  
 Temperature temperature code T6, T110°C: -40°C...+60°C  
 T120°C: -40°C...+70°C  
 temperature code T5, T130°C: -40°C...+80°C

**HDA 4abc-d-eeee(e)-fg-hhh(psi)iiij**

4 or 7 or 8  
 any alphanumeric character (not critical to certification)  
 9 or G or J (not approved for tb) or  
 Q (not approved for Group A, db and tb) or W or U  
 any alphabetic character  
 4 digits for range in bar or psi  
 5 digits for range in psi > 9999  
 D or E (not approved for db and tb)  
 any alphabetic character (not for f = E)  
 alphanumeric value  
 (psi) for psi-version or "" for bar-version  
 numeric value  
 Inch or " or cm or m  
 iiij in brackets

- **Pressure Transducer – with front flash membrane** **HDA 4aZc-d-eeee(e)-kkk-fg-hhh(psi)iiij**

**a** = accuracy  
**Z** = pressure port  
**c** = electrical connection

**d** = signal  
**e** = pressure range

**f** = approval  
**g** = gauge type  
**h** = modification number  
**(psi)**

**I** = length of cable  
**J** = cable length definition  
**k** = front flash  
 bar-version

Technical data:

Rated Supply Voltage 30 Vdc  
 Output Signal 0..10 V or 0..20 mA or 4..20 mA  
 or

Rated Supply voltage 6 Vdc  
 Output Signal 10-90% ratiometric  
 Rated Input Current 25 mA

Maximum working pressure 37 to 15000 psi (0.26 MPa to 103.4 MPa)

4 or 7 or 8  
 front flash membrane  
 9 or G or J (not approved for tb) or  
 Q (not approved for Group A, db and tb) or W or U  
 any alphabetic character  
 4 digits for range in bar or psi  
 5 digits for range in psi > 9999  
 D or E (not approved for db and tb)  
 any alphabetic character (not for f = E)  
 alphanumeric value  
 (psi) for psi-version or "" for bar-version  
 numeric value  
 inch or " or cm or m  
 alphanumeric value  
 iiij in brackets



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Temperature temperature code T6, T110°C: -40°C...+60°C  
 T120°C: -40°C...+70°C  
 temperature code T5, T130°C: -40°C...+80°C

- **Pressure Transducer – HART** **HDA 4abc-F21-eeee(e)-fg-hhh(iij)** **Standard**  
**HDA 4abc-F21-eeee(e)-T-III-fg-hhh(iij)** **with Temp. Measur.**  
**HDA 4aZc-F21-eeee(e)-kkk-fg-hhh(iij)** **with front flush membr.**

**a** = accuracy  
**b** = mechanical connection (pressure port)  
**c** = electrical connection  
**F21** = signal  
**e** = pressure range  
**f** = approval  
**g** = gauge type  
**h** = modification number  
**i** = length of cable  
**j** = cable length definition  
**Z** = pressure port  
**k** = pressure port  
**T** = Temperature measurement  
**III** = probe length  
 4 or 7 or 8  
 any alphanumeric character (not critical to certification)  
 9 or G or J (not approved for tb) or  
 Q (not approved for Group A, db and tb) or W or U  
 4..20 mA (with HART Interface)  
 4 digits for range in bar or 5 digits for range in psi  
**D**  
 any alphabetic character  
 alphanumeric value  
 numeric value  
 inch or " or cm or m  
 front flush membrane  
 3 digits alphanumeric  
 digital with HART Interface  
 in mm, standard = 007

Technical data:

Rated Supply Voltage 30 Vdc  
 Output Signal 4..20 mA  
 Rated Input Current 25 mA  
 Maximum working pressure HDA 4abc-F21-eeee(e)-fg... 30000 psi (206.8 MPa)  
 HDA 4aZc-F21-eeee(e)-kkk-fg... 30000 psi (206.8 MPa)  
 HDA 4abc-F21-eeee(e)-T-III-fg... 10007.6 psi (69.0 MPa)  
 Temperature temperature code T6, T110°C: -40°C...+60°C  
 temperature code T5, T120°C: -40°C...+70°C

- **Pressure Switch – Standard “approval E - CSA”** **EDS 410-aaaa-b-f-ccc(psi)ddde**

**a** = pressure range  
**b** = number of switching outputs  
**f** = approval  
**c** = modification number  
**(psi)**  
**d** = length of cable  
**e** = cable length definition  
 bar-version  
 numeric value  
 1  
 E (not approved for db and tb)  
 alphanumeric value  
 (psi) for psi-version or "" for bar-version  
 numeric value  
 inch or " or cm or m  
 ddde in brackets

Technical data:

Rated Supply Voltage 30 Vdc  
 Output Signal e = 1: 1.2A max  
 Rated Input Current 1.3 A  
 Maximum working pressure 100 to 30000 psi (0.69 MPa to 206.8 MPa)  
 Temperature temperature code T6: -40°C...+60°C  
 temperature code T5: -40°C...+80°C



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• **Pressure Switch – Standard**

- a = accuracy
- b = mechanical connection (pressure port)
- c = electrical connection
  
- d = pressure range
  
- e = number of switching outputs
- f = output type
- g = approval
- h = gauge type
- i = modification number
- (psi)
- k = length of cable
- l = cable length definition
- bar-version

**EDS 4abc-dddd(d)-ef-gh-iiii(psi)kkkl**  
 4 or 7  
 any alphanumeric character (not critical to certification)  
 9 or G or J (not approved for tb) or  
 Q (not approved for Group A, db and tb) or W or U  
 4 digits for range in bar or psi  
 5 digits for range in psi > 9999  
 1 or 2  
 F or P  
 D  
 any alphabetic character  
 alphanumeric value  
 (psi) for psi-version or "" for bar-version  
 numeric value  
 inch or " or cm or m  
 kkl in brackets

Technical data:

Rated Supply Voltage	30 Vdc
Output Signal	e = 1: 1,2A max e = 2: 0,6A max per output
Rated Input Current	1.3 A
Maximum working pressure	37 to 30000 psi (0.26 MPa to 206.8 MPa)
Temperature	temperature code T6, T110°C: -40°C...+60°C T120°C: -40°C...+70°C temperature code T5, T130°C: -40°C...+80°C

or

Rated Supply Voltage	30 Vdc
Output Signal	2: 1.2A max per Output
Rated Input Current	2.5 A
Maximum working pressure	37 to 30000 psi (0.26 MPa to 206.8 MPa)
Temperature	temperature code T110°C: -40°C...+60°C T120°C: -40°C...+70°C temperature code T4A, T130°C: -40°C...+80°C

• **Temperature Transducer – Standard**

- a = mechanical connection
- b = electrical connection
  
- c = signal
- d = approval
- e = probe length
- f = modification number
- g = length of cable
- h = cable length definition

**ETS 45ab-c-d-eee-fff(gggh)**  
 any alphanumeric character (not critical to certification)  
 9 or G or J (not approved for tb) or  
 Q (not approved for Group A, db and tb) or W or U  
 any alphabetic character  
 D  
 numeric value in mm [max 500]  
 alphanumeric value  
 numeric value  
 inch or " or cm or m

Technical data:

Rated Supply Voltage	30 Vdc
Output Signal	0..10 V, 4..20 mA
Rated Input Current	25 mA
Maximum working pressure	short probe sensor 8702 psi (60.0 MPa) long probe sensor 1813 psi (12.5 MPa)





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Temperature temperature code T6, T110°C: -40°C...+60°C  
 T120°C: -40°C...+70°C  
 temperature code T5, T130°C: -40°C...+80°C

- Temperature Transducer – HART**      **ETS 4abc-F21-kkk-f-hhh(iij)**      **Standard**  
 ETS 4abc-F21-kkk-P-eeee(e)-fg-hhh(iij)      **with Press. Measur.**

**a** = accuracy      1 or 5  
**b** = mechanical connection      any alphanumeric character (not critical to certification)  
**c** = electrical connection      9 or G or J (not approved for tb) or  
 Q (not approved for Group A, db and tb) or W or U  
**F21**      4..20 mA Signal (with HART Interface)  
**e** = pressure range      4 digits for range in bar and 5 digits for range in psi  
**k** = probe length      in mm [max 500]  
**f** = approval      D  
**g** = gauge type      any alphabetic character  
**h** = modification number      alphanumeric value  
**i** = length of cable      numeric value  
**j** = cable length definition      inch or “ or cm or m  
**P** = Pressure measurement option      digital with HART Interface

Technical data:

Rated Supply Voltage      30 Vdc  
 Output Signal      4..20 mA  
 Rated Input Current      25 mA  
 Maximum working pressure  
 ETS 4abc-F21-kkk-f-hhh(iij) short probe sensor      8702 psi (60.0 MPa)  
 ETS 4abc-F21-kkk-f-hhh(iij) long probe sensor      1813 psi (12.5 MPa)  
 ETS 4abc-F21-kkk-P-eeee(e)-fg-hhh(iij)      8702 psi (60.0 MPa)  
 Temperature temperature code T6, T110°C: -40°C...+60°C  
 temperature code T5, T120°C: -40°C...+70°C

- Flow Rate Transmitter - HART**      **HFT 31bc-F21-eeee-S-X-f-hhh(iij)**

**b** = process connection      any alphanumeric character (not critical to certification)  
**c** = electrical connection      9 or G or J (not approved for tb) or  
 Q (not approved for Group A, db and tb) or W or U  
**F21**      4..20 mA Signal (with HART Interface)  
**e** = measuring range      4 digits for range l/min  
**S** = housing material      Stainless Steel  
**X** = housing version  
**f** = approval      D  
**h** = modification number      alphanumeric value  
**i** = length of cable      numeric value  
**j** = cable length definition      inch or “ or cm or m

Technical data:

Rated Supply Voltage      30 Vdc  
 Output Signal      4..20 mA  
 Rated Input Current      25 mA  
 Maximum working pressure      6090 psi (42.0 MPa)  
 Temperature temperature code T6, T110°C: -40°C...+60°C  
 temperature code T5, T120°C: -40°C...+70°C



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• **Bladder Integrity Sensor - HART**

- a = signal / bladder status
- b = mechanical connection
- c = electrical connection

**F21**

- e = measuring range
- f = approval
- g = gauge type
- h = modification number
- i = length of cable
- j = cable length definition

Technical data:

Output Signal  
 Rated Supply Voltage  
 Rated Input Current  
 Maximum working pressure  
 Temperature

**BIS 1abc-F21-eeee(e)-fg-hhh(iij)**

alphanumeric value (not critical for certification)  
 2 = G1/2 DINA 3852 male  
 9 or G or J (not approved for tb) or  
 Q (not approved for Group A, db and tb) or W or U  
 4..20 mA Signal (with HART Interface)  
 4 digits for range in bar and 5 digits for range in psi  
 D or A  
 any alphabetic character  
 alphanumeric value  
 numeric value  
 inch or " or cm or m

4..20 mA output  
 30 Vdc  
 25 mA  
 10007.6 psi (69.0 MPa)  
 temperature code T6, T110°C: -40°C...+60°C  
 temperature code T5, T120°C: -40°C...+70°C

• **Difference Pressure Transmitter - Standard**

- c = electrical connection

- d = signal
- e = measuring range
- S = housing material
- f = approval
- h = modification number
- (psi)
- i = length of cable
- j = cable length definition
- bar-version

Technical data:

Rated Supply Voltage  
 Output Signal  
 or  
 Rated Supply voltage  
 Output Signal  
 Rated Input Current  
 Maximum working pressure  
 Temperature

**HPT 50c-d-eeee-S-f-hhh(psi)ijj**

9 or G or J (not approved for tb) or  
 Q (not approved for Group A, db and tb) or W or U  
 any alphabetic character  
 numeric value  
 Stainless Steel  
 D  
 alphanumeric value  
 (psi) for psi-version or "" for bar-version  
 numeric value  
 inch or " or cm or m  
 iij in brackets

30 Vdc  
 0..10 V or 0..20 mA  
 6 Vdc  
 10-90% ratiometric  
 25 mA  
 6090 psi (42.0 MPa)  
 temperature code T6, T110°C: -40°C...+60°C  
 T120°C: -40°C...+70°C  
 temperature code T5, T130°C: -40°C...+80°C

• **Difference Pressure Switch - Standard**

- c = electrical connection

- p = measuring range
- e = number of switching outputs
- f = set point type
- S = housing material

**HPS 50c-pppp-ef-S-g-hhh(psi)ijj**

9 or G or J (not approved for tb) or  
 Q (not approved for Group A, db and tb) or W or U  
 numeric value  
 1 or 2  
 F= Fix or P= programmable  
 Stainless Steel



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<b>g</b> = approval	<b>D</b>
<b>h</b> = modification number	alphanumeric value
<b>(psi)</b>	(psi) for psi-version or " for bar-version
<b>i</b> = length of cable	numeric value
<b>j</b> = cable length definition	inch or " or cm or m
bar-version	iiij in brackets

Technical data:

Rated Supply Voltage	30 Vdc
Output Signal	e = 1: 1.2A max e = 2: 0.6A max per output
Rated Input Current	1.3 A
Maximum working pressure	6090 psi (42.0 MPa)
Temperature	temperature code T6, T110°C: -40°C...+60°C T120°C: -40°C...+70°C temperature code T5, T130°C: -40°C...+80°C

Additional explanation to the type code of all models:

**Electrical connection**

9	=	1/2-14 NPT Conduit (male), Single leads
G	=	1/2-14 NPT Conduit (male), jacketed cable
J	=	Connection head, Aluminium
Q	=	Connection head, stainless Steel
W	=	M20x1.5 Conduit (male) [Draw.no: 4261296; long version], Single Leads
U	=	M20x1.5 Conduit (male) [Draw.no: 4261296; long version], jacketed cable
0	=	Special type of connection (not part of CSA Certification): M20x1.5 Conduit (male) [Drawing no.: 3654343; short version]

**Mechanical connection**

1	=	G1/2 B DIN EN 837, male
2	=	G1/2 DIN 3852, male
3	=	M14x1,5 DIN 3852, male
4	=	G1/4 A DIN 3852, male
5	=	7/16-20 UNF 2B (SAE4), female
6	=	7/16-20 UNF 2A (SAE4), male
7	=	9/16-18 UNF 2A (SAE6), male
8	=	1/4-18 NPT, male
9	=	G1/4 DIN 3852 female
A	=	9/16-18 UNF 2B (SAE6), female
B	=	F250C, Autoclave(9/16-18 UNF2B, female)
C	=	SF250CX20, Autoclave (7/16-20 UNF 2B female)
D	=	1/8-27 NPT male
E	=	M10x1 DIN 3852, male
F	=	1/4-18 NPT, female
G	=	G1/4 B DIN EN 837, male
H	=	3/4-16 UNF 2A (SAE8), male
J	=	G3/4 A DIN 3852 male
K	=	1/4-18 NPTF, male
L	=	1/4-18 NPTF, female
M	=	M12x1.5 DIN 3852 male
N	=	M20x1 without seal
P	=	AM12S38 DIN 3852 male



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R	=	M14x1.5 - ISO6149-2 male
S	=	M18x1.5 male
T	=	G1/8 DIN 3852, male
U	=	G3/8 DIN 3852, male
V	=	SF375CX20, Autoclave (9/16-18 UNF 2B female)
W	=	1/2-14 NPT male
Y	=	G1/2 HN 28-22 male
Z	=	flush mount process connection

I, O and Q are open for different common threads  
 Other threads as modification.

#### Standard signals

A	=	4...20mA	(2-wire)
B	=	max. range 0...10V	(3-wire)
C	=	4...20 mA	(3-wire , current source)
E	=	0...20mA	(3-wire , current source)
G	=	max. range 0...6V	(3-wire)
R	=	10%...90% Ub	(3-wire)
F21	=	4...20mA with HART Interface	

#### Conditions of Acceptability:

The products are required to be supplied only by certified power supply providing reinforced or double insulation for protection against electric shock with output voltages below the limits of 6.3.1 of 61010-1 or 30 V r.m.s. and 42.4 V peak or 60 V d.c and limited energy circuit according to 9.4 (LPS or Class2).

The equipment was not evaluated to flammable/explosive fluids or liquids.

Equipment is only to be installed by trained personal in accordance to the installation, set-up, operation and maintenance of comparable devices and certified as being capable of such work.

The equipment which is not direct installed to a junction box shall be connected to a conduit installation.

For BIS model: The BIS labc-F21-eeee(e)-fg-hhh(iij) must not be energized when the bladder sensor is located in explosive atmosphere. The sensor can be located only in safe non-hazardous area. The bladder is not covered by this certification. The BIS model is certified as a component only and its final installation must be subjected to acceptance of local authority having jurisdiction.

#### Notes:

1. Basic model designation is followed by alpha/numeric suffixes denoting type code.
2. The devices must be grounded during installation.
3. The suitability of the grounding shall be subject to the acceptance of the Local Authority Having Jurisdiction.



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### APPLICABLE REQUIREMENTS

CAN/CSA Standard C22.2 No. 0-M91 <i>(Reaffirmed 2006)</i>	General Requirements - Canadian Electrical Code, Part II
CSA Standard C22.2 No. 25-1966 <i>(Reaffirmed 2000)</i>	Enclosures for Use in Class II Groups E, F, and G Hazardous Locations
CSA Standard C22.2 No. 30-M1986 <i>(Reaffirmed 2003)</i>	Explosion-Proof Enclosures for Use in Class I Hazardous Locations
CAN/CSA-C22.2 No. 60079-0:15	Explosive atmospheres — Part 0: Equipment — General requirements
CAN/CSA-C22.2 No. 60079-1:16	Explosive atmospheres — Part 1: Equipment protection by flameproof enclosures "d"
CAN/CSA-C22.2 No. 60079-31:15	Explosive atmospheres — Part 31: Equipment dust ignition protection by enclosure "t"
CSA Standard C22.2 No. 94.1-07 <i>(First Edition - September 2007)</i>	Enclosures for Electrical Equipment, Non-Environmental Considerations
CSA Standard C22.2 No. 94.2-07 <i>(First Edition - September 2007)</i>	Enclosures for Electrical Equipment, Environmental Considerations
CAN/CSA-C22.2 No. 61010-1-12	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1: General Requirements
ANSI/UL Standard 50 <i>(Twelfth Edition, September 2007)</i>	Enclosures for Electrical Equipment, Non-Environmental Considerations
ANSI/UL Standard 50E <i>(First Edition, September 2007)</i>	Enclosures for Electrical Equipment, Environmental Considerations
UL 61010-1 (Third Edition)	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
ANSI/UL Standard 1203 <i>(Fourth Edition, September 2006)</i>	Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
UL 60079-0 Sixth Edition	Explosive atmospheres – Part 0: Equipment – General requirements
UL 60079-1 Seventh Edition	Explosive Atmospheres – Part 1: Equipment Protection by Flameproof Enclosures "d"
UL 60079-31 Second Edition	Explosive Atmospheres – Part 31: Equipment Dust Ignition Protection by Enclosure "t"



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### MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

The following markings are provided on thermally printed silver polyester adhesive nameplates that are manufactured by qMik Industrie-Kennzeichnungen, GmbH, Type qM 442. The nameplates are applied to the outside of the devices' stainless steel enclosures.

The Markings may alternatively be laser engraved onto the stainless steel enclosures.

#### All products

- Manufacturer name: "Hydac Electronic, GmbH", "Hydac Electronic", "Hydac" or equivalent or CSA Master Contract Number "224264", adjacent to the CSA Mark in lieu of manufacturer name (Note: May be omitted on small labels);
- Certificate Number CSA 19.2032612X;
- Model number: as specified in the PRODUCTS section, above;
- Electrical ratings: as specified in the PRODUCTS section, above;
- Ambient temperature rating: as specified in the PRODUCTS section, above;
- Manufacturing date in MMY format, or serial number, traceable to month of manufacture;
- Enclosure type: "Type 4 Enclosure", "Type 4" or equivalent;
- The CSA Mark with or without "C" and "US" indicators, as shown on the Certificate of Conformity;
- Hazardous Location designation: as specified in the PRODUCTS section, above (may be abbreviated);
- Temperature code: as specified in the PRODUCTS section, above;
- Maximum Working Pressure (MWP): as specified in the PRODUCTS section, above;
- Wiring connections: denotes wiring function by wire color or numbers, as appropriate.

#### HDA-4000 and EDS-410 Approval E products:

- Reference to Installation Instructions: "Install per 663203".

#### HDA-4xxx and EDS-4xxx Approval D products with vents

- Reference to Installation Instructions: "Install per 663931"; or
- HDA4xxx: Reference to Operating Instructions (includes Control Drawing: 663931): "Protection concept → Operating Instruction 669835".  
EDS 4xxx: Reference to Operating Instructions (includes Control Drawing: 663931): "Protection concept → Operating Instruction 669837".



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ETS-45xx products:

- Reference to Installation Instructions: "Install per 663928"; or
- Reference to Operating Instructions (includes Control Drawing: 663928): "Protection concept → Operating Instruction 669836".

HDA4 ETS4 HFT3 F21/ HART models:

- Reference to Installation Instructions: "Install per 663929"; or
- HDA 4 : Reference to Operating Instructions (includes Control Drawing: 663929): "Protection concept → Operating Instruction 669905".  
ETS 4: Reference to Operating Instructions (includes Control Drawing: 663929): "Protection concept → Operating Instruction 669907".  
HFT 4: Reference to Operating Instructions (includes Control Drawing: 663929): "Protection concept → Operating Instruction 669908".

BIS F21 model:

- Reference to Installation Instructions: "Install per 663930"; or
- Reference to Operating Instructions (includes Control Drawing: 663930): "Protection concept → Operating Instruction 669906".

HPT HPS model:

- Reference to Installation Instructions: "Install per 663932"; or
- Reference to Operating Instructions (includes Control Drawing: 663932): "Protection concept → Operating Instruction 669994".

**A5 EU-Konformitätserklärung / EU declaration of conformity**



HYDAC Electronic GmbH, Hauptstraße 27, 66128 Saarbrücken

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 see also: General Terms of Use (AGB)



**EU-Konformitätserklärung / EU declaration of conformity** 18 / 228a / 2023

Hiermit erklären wir in alleiniger Verantwortung, 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 Richtlinien/Verordnungen entspricht.

We herewith declare under our sole responsibility 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 directive/regulation listed below.

<b>Bezeichnung / Designation</b>	Volumenstrommessumformer für explosionsgefährdete Umgebungen (Druckfeste Kapselung) / Flow rate transmitter for potentially explosive atmospheres ( Flameproof enclosure)
<b>Typ / Type</b>	HFT 3xxx ... D ...
<b>EMV Richtlinie / EMV Guideline</b>	2014/30/EU
<b>Normen / Standards</b>	EN 61000-6-1:2007 EN 61000-6-2:2005 EN 61000-6-3:2012 EN 61000-6-4:2011
<b>Baumusterprüfbescheinigung / Type Examination Certificate</b>	KEMA 10ATEX0100X DEKRA Certification B.V.

Geschäftsführer:  
Dr. Franz Josef Eckle, Mathias Dieter,  
Dr. Carlos-Javier Moran-Iglesias

Sitz der Gesellschaft: Saarbrücken  
Registergericht:  
Saarbrücken, HFRB 8707

**Bankverbindung in Saarbrücken:**

Commerzbank AG  
Nr. 3168888 BLZ 590 800 90  
BIC DRESDEFF590  
IBAN DE77 5908 0090 0316 8888 00

Deutsche Bank AG  
Nr. 0355800, BLZ 590 700 00  
BIC DEUTDE33HAN  
IBAN DE54 5907 0000 0035 5800 00

Landesbank Saar  
Nr. 5250006 BLZ 590 500 00  
BIC SALADE55XXX

HypoVereinsbank  
Nr. 353568264, BLZ 590 200 90  
BIC HYVEDE33HAN  
IBAN DE58 5902 0090 0353 5682 64

Deutsche Postbank  
Nr. 203666 BLZ 590 100 66  
BIC PBNKDEFF590



# HYDAC ELECTRONIC

ATEX

2014/34/EU



I M2 Ex db I Mb  
 II 2G Ex db IIC T6,T5 Gb  
 II 2D Ex tb IIIC T110°C...T120°C Db

EN IEC 60079-0:2018  
 EN 60079-1:2014  
 EN 60079-31:2014

14<sup>th</sup> March 2023  
 Datum / Date

ppa C. Krupp  
 Name

(CE-authorized person)


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 USt-Identnummer: DE 138 277 433  
 Steuernummer: 040/110/50684

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 IBAN DE67 5901 0066 0000 2036 66

**A6 UKCA-Konformitätserklärung / UKCA declaration of conformity**

 <p style="text-align: center;"><b>HYDAC ELECTRONIC</b></p> <p>HYDAC Electronic GmbH, Hauptstraße 27, 66128 Saarbruecken</p>	<p><b>HYDAC ELECTRONIC GMBH</b>                  Hauptstrasse 27                  66128 Saarbruecken, Germany</p> <p>Phone exchange: (0049) 6897 509-01                  Fax purchasing dept.: (0049) 6897 509-1745                  Fax sales dept.: (0049) 06897 509-1735                  E-Mail: support.electronic@hydac.com                  website: www.hydac.com                  see also: General Terms of Use (AGB)</p> <p>Authorised to compile the technical documentation:  <b>HYDAC TECHNOLOGY LIMITED</b>                  De Havilland Way, Windrush Park                  WITNEY, Oxfordshire, GB-OX29 OYG                  Phone exchange: (0044) 1993 / 86 63 66                  Fax: (0044) 1993 / 86 63 65                  E-Mail: info@hydac.co.uk                  website: www.hydac.com</p>		
<p><b>UKCA – Declaration of Conformity</b> <span style="float: right;">18 / 19a / 2023</span></p> <hr/> <p>We herewith declare under our sole responsibility 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.</p>			
<b>Designation</b>	Flow rate transmitter for potentially explosive atmospheres ( Flameproof enclosure)		
<b>Type</b>	HFT 3xxx ... D ...		
<b>EMV Richtlinie / EMV Guideline</b>	2014/30/EU		
<b>Designated Standards</b>	EN 61000-6-1:2007 EN 61000-6-2:2005 EN 61000-6-3:2012 EN 61000-6-4:2011		
<b>Type Examination Certificate</b>	KEMA 10ATEX0100X DEKRA Certification B.V.		
Managing Directors: Dr. Franz Josef Eckle, Mathias Dieter, Dr. Carlos-Javier Moran-Iglesias  Corporate seat: Saarbruecken Registration court: Saarbruecken, HRB 8707  Tax-ID (USt-ID): DE 138 277 433 Tax number: 045/110/50684	Bank account in Saarbruecken:  Commerzbank AG No. 3168888 BCN 500 800 90 BIC DRESDEFF330 IBAN DE77 5908 0090 0316 8888 00	Deutsche Bank AG No. 0355800, BCN 590 700 00 BIC DEUTDE33HAN IBAN DE54 5907 0000 0035 5800 00	HypoVereinsbank No. 353566264, BCN 590 200 90 BIC HYVEDE33HAN IBAN DE58 5902 0090 0353 5682 64
Landesbank Saar No. 5250006 BCN 590 500 00 BIC SALADE55XXX IBAN DE51 5905 0000 0005 2500 00	Deutsche Postbank No. 200866 BCN 590 100 66 BIC FBANKDE33HAN IBAN DE67 5901 0096 0000 2036 66		

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14<sup>th</sup> March 2023  
 Datum / Date

ppa C. Krupp  
 Name

(CE-authorized person)

Geschäftsführer:  
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 Dr. Carlos-Javier Moran-Iglesias  
 Sitz der Gesellschaft: Saarbrücken  
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 Saarbrücken, HRB 8707  
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**HYDAC Service**

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

**HYDAC SERVICE GMBH**

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**NOTE**

The information and particulars provided in this manual apply to the operating conditions and applications described herein. For applications or 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.