

Supplementary Installation and Operating Instructions

Variable-area flowmeter

H 250/H54

Signal converter M10

of hazardous duty design



Category
II2G

Variable area flowmeters

Vortex flowmeters

Flow controllers

Electromagnetic flowmeters

Ultrasonic flowmeters

Mass flowmeters

Level measuring instruments

Communications technology

Engineering systems & solutions

Switches, counters, displays and recorders

Heat metering

Pressure and temperature

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1 General Safety Information

These additional “Ex“ Instructions apply to the explosion protected versions of the variable-area flowmeter H..../..../M10-Ex. They are supplementary to the Installation and Operating Instructions for the non- explosion protected versions.

The information given in these Instructions contains only the data relevant to explosion protection. The technical details given in the Installation and Operating Instructions No.: 702280##00 for the non-explosion protected version apply unchanged unless excluded or superseded by these Instructions.

In compliance with European Directive 94/9/EC (ATEX 100a), variable-area flowmeters of the H..../..../M10-Ex series are certified in conformity with European Standards EN 50XXX by the Physikalisch-Technische Bundesanstalt (PTB) for use in hazardous locations under

PTB 01 ATEX 1154

This certification together with its boundary conditions is required to be observed without fail (see also Annex A.1 “EC-Type Examination Certificate“).

IMPORTANT!

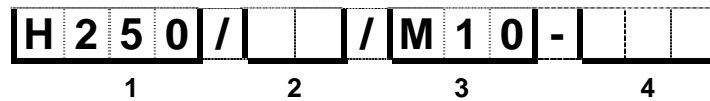
Mounting, installation, (initial) startup and maintenance work in connection with hazardous-duty equipment may only be carried out by personnel who have received training in explosion protection!

Note!

For processes involving combustible and highly flammable products, easily removable threaded connections; SMS; TriClamp; are not allowed.

2 Safety-Relevant Description Code

The safety-relevant Description code is made up of the following elements: *)



- 1 : Series measuring unit
H54 : Unit H54
H250 : Unit H250
- 2 : Material / versions
RR : stainless steel
C : stainless steel with PTFE liner (H250: PTFE / ceramic)
HC : Hastelloy (H250 only)
Ti : Titan (H250 only)
F : aseptic version (Food) (H250 only)
- 3 : Indicator / transmitter M10
- 4 : Explosion protection
EEx : Explosion protected device to European Standard

*) Positions which are not used in the type code are not required.

3 Main safety-relevant characteristics

The H.../.../M10-EEx variable-area flowmeter consists of a combination of signalconverter and measuring tube. The main characteristics of the explosion protected version are described below.

3.1 Process products

Flammable products are allowed provided they are not present in potentially explosive form.

3.2 Category / Zone allocation

The H.../.../M10-EEx variable-area flowmeter is basically designed in Category 2 for use in Zone 1.

3.3 Type of protection

The H.../.../M10-EEx variable-area flowmeters bear the following marking: EEx d IIC T6

3.4 Special lock

The sealing covers of the electronics compartment are secured by a special lock. The locking screw requires use of an Allen key (3 mm size).

3.5 Cable entries / sealing plugs

Cable entries and sealing plugs must, in ready-to-operate condition, satisfy the IP Class of Protection IP67 and each be separately certified in conformity with EN 50 018. Any requirements specified in the test certificates of the components shall be observed.

3.6 Power supply

Type H.../.../M10-Ex variable-area flowmeters do not require any separate power source. The necessary supply is obtained via the current output.

3.7 I/O functions

When connecting the I/O interfaces of the H.../.../M10-Ex variable-area flowmeters, the following values need to be taken into account.

I/O function (1)	Nominal values of the non-certified receiver instrument	Added restriction
See Standard Installation and Operating Instructions	See Standard Installation and Operating Instructions	Supply power for receiver instruments max. 253V
(1) Only for connection to circuits with "functional extra-low voltage with protective separation (PELV)" Peak values $U_{AC} \leq 25V$; $U_{DC} \leq 60V$		

3.8 Ambient temperatures / temperature classes

The permissible ambient temperature for the variable-area flowmeters is limited to a value of $T_{amb} \leq 60\text{ }^{\circ}\text{C}$ / $140\text{ }^{\circ}\text{F}$.

With regard to maximum surface temperatures, variable-area flowmeters are exposed to three heat sources:

- Ambient temperature T_{amb}
- Electric power loss P_v
- Process temperature T_m

Accordingly, at a given maximum ambient temperature ($T_{amb} \leq 60\text{ }^{\circ}\text{C}$ / $140\text{ }^{\circ}\text{F}$) and a given maximum power loss ($P_v \leq 3\text{ W}$), we obtain maximum surface temperatures as a factor of the process temperature.

For that reason, the devices are not allocated to any specific temperature class; rather, the temperature class of the devices is a function temperature, see table below.

Temperature class	Ambient temperature in $^{\circ}\text{C}$		Max. permissible process permanent temperature					
			Wiring $70\text{ }^{\circ}\text{C}$ / $158\text{ }^{\circ}\text{F}$		Wiring $80\text{ }^{\circ}\text{C}$ / $176\text{ }^{\circ}\text{F}$		Wiring $90\text{ }^{\circ}\text{C}$ / $194\text{ }^{\circ}\text{F}$	
	$^{\circ}\text{C}$	$^{\circ}\text{F}$	$^{\circ}\text{C}$	$^{\circ}\text{F}$	$^{\circ}\text{C}$	$^{\circ}\text{F}$	$^{\circ}\text{C}$	$^{\circ}\text{F}$
T6	-40 ... +60	-40 ... +140	85	185	85	185	85	185
T5	-40 ... +50	-40 ... +122	100	212	100	212	100	212
	-40 ... +60	-40 ... +140	85	185	100	212	100	212
T4	-40 ... +50	-40 ... +122	135	275	135	275	135	275
	-40 ... +60	-40 ... +140	85	185	135	275	135	275
T3 ... T1	-40 ... +40	-40 ... +104	180	356	200	392	200	392
	-40 ... +50	-40 ... +122	135	275	190	374	200	392
	-40 ... +60	-40 ... +140	85	185	145	293	200	392

Max. permissible process temperature

The cable glands and line entries must have the same degree of thermal stability as the connecting cable.

4 Marking

The variable-area flowmeters are identified by an adhesive label or metal plate attached to the signal converter. The type code is explained in Section 2.
H.../.../M10- EEx, Category 2G

The diagram shows a rectangular nameplate for a KROHNE flowmeter. It is divided into several sections:

- Manufacturer:** KROHNE, Duisburg, Germany
- Year of manufacture:** 0044, 0102
- Type:** Type : MD: 2003
- SN:** SN: TS: nnn°C
- PS:** PS: nn bar
- Warning:** A warning triangle with an exclamation mark and the text: "Zusätzliche Einschränkung siehe Manual / Additional limits see manual"
- Tag-No.:** Tag-No.: xxx
- Approval information:** Zulassung: PTB 01 ATEX 1154, approval: EEx d IIC T6...T1, T_{amb} - 40°C...+60°C, and the Ex II2G symbol.
- Technical data of circuits:** A table with columns for SIGNAL OUTPUT, TERMINAL, U (V), and I (mA).

SIGNAL OUTPUT	TERMINAL	U (V)	I (mA)
CURRENT LOOP	I ₊ , I ₋	24 + 30%	4 - 20
BINARY	NAMUR B ₊ , B _N	8	<8.0(L) >2.1(H)
OUTPUT 1	O/C B ₊ , B _{O/C}	30	100
BINARY	NAMUR B ₊ , B _N	8	<0.8(L) >2.1(H)
OUTPUT 2	O/C B ₊ , B _{O/C}	30	100
RESET COUNTER	R ₊ , R ₋	30	< 1
- Safety info:** Zul. Meßstofftemp./brennbare Meßstoffe siehe Betriebsanleitung 702247##00 / Permitted medium temp./inflamm. liquids see instruction manual

5 Mounting and installation

Mounting and installation to be carried out in conformity with the valid installation standards for hazardous locations (e.g. EN 60079-14 / VDE 0165) by specialist personnel trained in explosion protection.

The information given in the standard Installation and Operating Instructions, the Supplementary Installation and Operating Instructions (Ex) and also in the EC type test certificate (see Attachment A.1) must be observed without fail.

Verify that the variable-area flowmeter is suitable for the application in question by comparing the details on the nameplate with those in Section 3.2 (Categories / Zone allocation), Section 2 (Type code) and Section 4 (Marking).

When installing, please pay special attention to the following points.

5.1 Electrical connection

5.1.1 General

Insulation rating

The insulation of variable-area flowmeters H.../.../M10 - EEx is rated in conformity with VDE 0110-1/04.97, equivalent to IEC 60 664-1, and takes into account the following ratings:

- Overvoltage category for signalling and measurement circuits: II
- Insulation contamination level: 2

HAZARDOUS-DUTY Systems

- The signal converter to be incorporated in the equipotential bonding system via the **external PA (equipotential bonding) connection**.
- The **electrical connection** of the variable-area flowmeters to be made as a fixed installation.

5.1.2 Terminal compartment

The electrical connection of the power supply and I/O functions is made in the integrated terminal compartment of the signal converter. The terminal compartment is designed in EEx d type of protection. Unassigned openings to be sealed in conformity with EN 50 018.

The cables can basically be routed into the flameproof terminal compartment in one of two ways.

- Direct entry of the connecting cables by way of certified flameproof cable glands into the flameproof terminal compartment ($V_{iÜ} 2000 \text{ cm}^3$). The cable glands must possess a separate test certificate to EN 50 018. The requirements specified in the test certificate for the cable gland need to be observed.
- Direct entry of the power cables by way of conduits into the flameproof terminal compartment of the device. After the conduit has been screwed in, this must together with the housing form a flameproof joint with a minimum of 8mm depth of engagement. A suitable stopping box shall be provided in accordance with the regulations for electrical installations. Installation of the conduit must be carried out in compliance with its separate test certificate.

5.1.3 Connecting cables

The connecting cables shall be selected in keeping with the valid installation standards (e.g. EN 60079-14 / VDE 0165). The outside diameter of the cables must match the cable clamping area for the cable entries.

5.1.4 Connection of power and I/O function

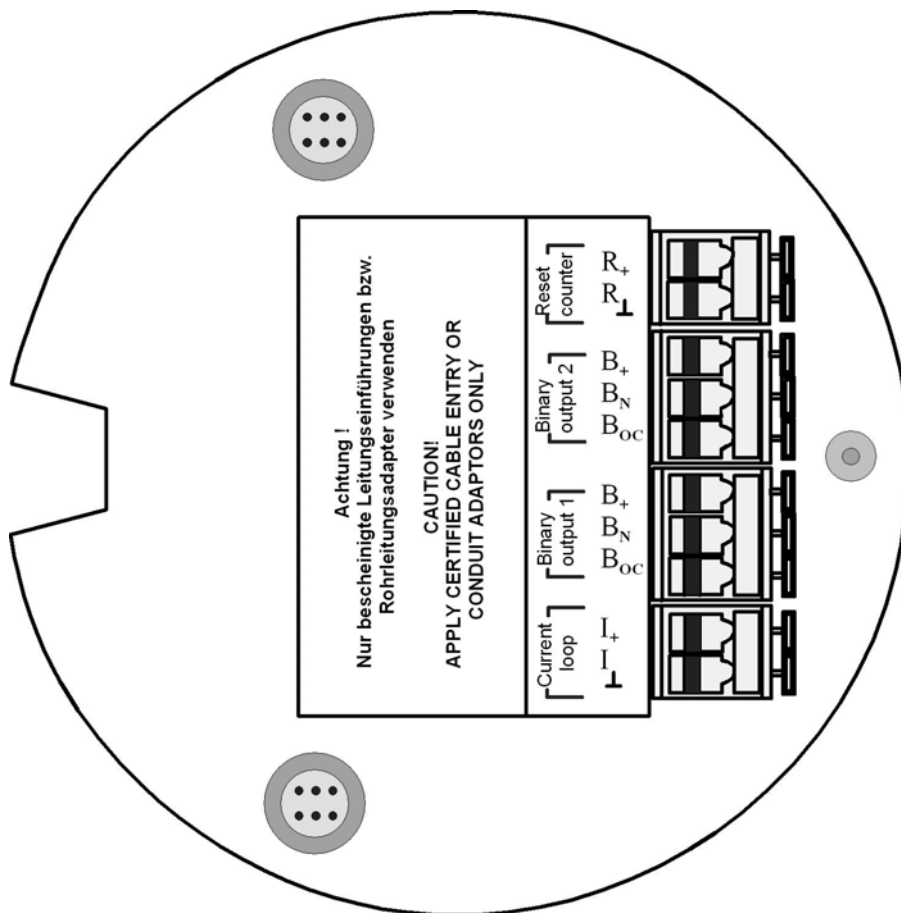
- Before connecting or disconnecting the electrical interconnecting cables of the device, make sure that all cables leading to the signal converter are isolated from the ground (reference potential) of the hazardous location. This also applies to safety conductors (PE) and equipotential bonding conductors (PA).
- All cores and shields of the connecting cables not safety-connected to the equipotential bonding system for the hazardous location should be carefully insulated from each other and from ground (test voltage $1500V_{\text{rms}}$ for conductors of non-intrinsically safe cables).

- Connect the shields by the shortest possible route to the press-fitted U-clamp terminal (PE) in the terminal compartment. If shields are to be grounded at both ends (e.g. for EMC reasons), adequate equipotential bonding is required between the two shield ends to avoid unacceptable equalizing currents.
- The signal converter must be incorporated in the equipotential bonding system of the hazardous location. The cable is to be connected to the outer press-fitted U-clamp terminal in the converter housing.
- The measuring tube can be incorporated in the equipotential bonding system of the hazardous location by means of the U-clamp terminal (if provided) in the flange or by means of conductive connections (gaskets, etc.).

The terminal assignment is listed in the following table:

Function		Terminal designation (see sketch)	
Signal output			
Current output HART (current loop)		I+	I-
Status output (1) (binary output 1)	NAMUR	B+	B _N
	O/C-PNP	B+	B _{OC}
Status output (2) (binary output 2)	NAMUR	B+	B _N
	O/C-PNP	B+	B _{OC}
Status input (reset counter)		R+	R-

Note the electrical data of the circuits given in Section 3.7. Even when operated in the nonhazardous location, the requirements pertaining to the signal output circuits need to be met.



6 Initial startup

Check the following points before initial startup:

- Suitability of the materials used for the measuring tube and gaskets for adequate resistance to corrosion through the process product.
- Compare the data on the nameplate on the signal converter with the existing operating data.
- Check that the measuring tube has been correctly installed in the pipeline.
- Check that the equipotential bonding system is properly connected.
- Check correct connection of the power cables.
- Check that the cover(s) of the electronics compartment is firmly in place, that the special lock is tightened down.

7 Operation

It is not permitted to open the cover of the electronics compartment during operation and in the presence of an explosive atmosphere.

Should parameterization of the device become necessary in the presence of an explosive atmosphere, this can be done by applying the supplied programming bar magnet to the glass window of the electronics compartment, without opening the housing, or digitally by way of the signal output (HART interface).

In the case of flammable products, the measuring sections shall be included in the periodic pressure testing of the plant.

8 Preventive maintenance

8.1 Maintenance

The signal converter does not require any maintenance under normal operating conditions and when used for the intended purpose. Within the scope of checks required to be carried out in hazardous locations to maintain systems in proper working order, the following visual inspections should be carried out at regular intervals:

- Inspection of the housing, cable entries and incoming cables for signs of corrosion and damage.
- Check of pipe connections for leakages.

8.2 Dismantling

8.2.1 General

Should it prove necessary to open the Flameproof Enclosure of the electronics compartment in the presence of an explosive atmosphere, the device must first be disconnected from supply. Be sure to allow the waiting time printed on the nameplate of the signal converter of:

- 8 minutes for temperature classes T6 and T5

to elapse before opening the Flameproof Enclosure. There is no waiting time for any of the other temperature classes.

Before connecting or disconnecting the device interconnecting cables, make sure that all cables leading into the signal converter are isolated from the ground (reference potential) of the hazardous location. This also applies to safety conductors (PE), functional ground (FE) and the equipotential bonding conductor (PA).

After any maintenance work has been carried out, be sure to regrease the thread of the flameproof cover of the signal converter, including cover gaskets, with a resin-free and acid-free all-purpose grease.

8.2.2 Replacement of signal converter / display

Disconnect the device from supply before opening the Flameproof Enclosure. Be sure to follow the procedure described in Section 8.2.1.

Note : Only same-type displays and complete converter housings may be replaced. Individual device inserts may not be replaced! Compare nameplates when replacing the signal converter. Only same-type signal converters to be replaced.

The display can be replaced after opening the Flameproof Enclosure of the electronics compartment. To replace a complete display, take note of the information given in Section 5.1.4.

The measuring tube of the variable-area flowmeter can in both cases remain in the pipeline, also when product is flowing.

Note : Always renew defective fastening clips (prisms) between measuring tube and display housing.

8.2.3 Replacement of complete device

Please refer to Sections 8.2.1 and 8.2.2. In addition, make sure that all process connections and the pipeline are non-pressurized and free of product. In the case of environmentally critical substances, carefully decontaminate the wetted parts of the flange system after dismantling.

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

PTB



EG-Baumusterprüfbescheinigung

- (1)
(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung
in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**
(3) EG-Baumusterprüfbescheinigungsnummer



PTB 01 ATEX 1154

- (4) Gerät: Schwebekörper-Durchfluss-Messgerät H.../.../M10-EEx
(5) Hersteller: KROHNE Messtechnik GmbH & Co. KG
(6) Anschrift: Ludwig-Krohne-Str. 5, 47058 Duisburg, Deutschland
(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage und den darin aufgeführten Unterlagen zu dieser Baumusterprüfbescheinigung festgelegt.
(8) Die Physikalisch-Technische Bundesanstalt bescheinigt als benannte Stelle Nr. 0102 nach Artikel 9 der Richtlinie des Rates der Europäischen Gemeinschaften vom 23. März 1994 (94/9/EG) die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.
Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht PTB Ex 01-11294 festgehalten.
(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit
EN 50014:1997 + A1 + A2 **EN 50018:2000**
(10) Falls das Zeichen „X“ hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.
(11) Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf Konzeption und Prüfung des festgelegten Gerätes gemäß Richtlinie 94/9/EG. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen dieses Gerätes. Diese Anforderungen werden nicht durch diese Bescheinigung abgedeckt.
(12) Die Kennzeichnung des Gerätes muß die folgenden Angaben enthalten:

II 2 G EEx d IIC T6 ... T1

Zertifizierungsstelle Explosionsschutz

Braunschweig, 30. September 2002

im Auftrag

Dr.-Ing. U. Klausmeier
Regierungsdirektor



Seite 1/4

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Auszüge oder Änderungen bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.

Physikalisch-Technische Bundesanstalt • Bundesallee 100 • D-38116 Braunschweig

(Translation)

PTB

Physikalisch-Technische Bundesanstalt

Brunswick and Berlin

(1) **EC Type Examination Certificate**

(2) Devices and protective systems for use as prescribed in hazardous locations - **Directive 94/9/EC**

(3) EC Type Examination Certificate Number

PTB 01 ATEX 1154

(4) Device: Variable-area flowmeter H.../.../M10-EEEx

(5) Manufacturer: KROHNE Messtechnik GmbH & Co. KG

(6) Address: Ludwig-Krohne-Str. 5, 47058 Duisburg, Germany

(7) The design of this device as well as the variously approved versions are defined in the Schedule to this Type Test Certificate and in the documents listed in the Schedule.

(8) The Physikalisch-Technische Bundesanstalt, being the notified body No. 0102 in accordance with Article 9 of the Council Directive of European Communities dated 23rd March 1994 (94/9/EC), certifies that the basic health and safety requirements have been satisfied for the conception and construction of devices and protective systems for use as prescribed in hazardous locations in accordance with Appendix II of said Directive.

The results of the test are specified in the confidential test report PTB Ex 01-11294.

(9) The basic health and safety requirements are satisfied by conformity with

[Ex] EN 50014:1997 + A1 + A2

EN 50018:2000

(10) If the character "X" is appended to the certificate number, this refers to special conditions for the safe application of the device as given in the Schedule to this Certificate.

(11) This EC Type Test Certificate applies only to the conception and construction of the defined device in accordance with Directive 94/9/EC. Further requirements of said Directive apply to the manufacture of that device and to putting it on the market. Such requirements are not covered by this Certificate.

(12) The marking of the device must include the following details:

II 2 G EEx d IIC T6 ... T1

Certification Agency for Explosion Protection
on behalf of Official stamp
(signed) of the PTB
Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Brunswick, 30st September 2002

(13) **Anlage**

(14) **EG-Baumusterprüfbescheinigung PTB 01 ATEX 1154**

(15) Beschreibung des Gerätes

Das Schwebekörper-Durchfluss-Messgerät H.../.../M10-EEx dient zur Messung des Volumendurchflusses von brennbaren und nichtbrennbaren Gasen und Flüssigkeiten in vertikal verlaufenden Rohrleitungen. Bei Durchströmung des Meßrohres von unten nach oben stellt sich der geführte Schwebekörper so ein, daß die auf ihn einwirkende Auftriebskraft, der Formwiderstand und sein Gewicht im Gleichgewicht sind. Jede Höhenstellung des Schwebekörpers entspricht dabei einer bestimmten Durchflußmenge. Elektromagnetische Positionssensoren im Anzeigenteil formen die Höhenstellung des Schwebekörpers in ein geeignetes elektrisches Ausgangssignal um.

Technische Daten

Speisung (Funktionskleinspannung PELV, $U_{DC} \leq 60 V$)

Signalausgang 4 – 20 mA (Klemme I ₊ , I _L)	$U_N = 24 V DC \pm 30 \%$, 2-Leiteranschluß mit HART-Kommunikation
Signalausgang 1 & 2	NAMUR Stromkreis
Ausgang 1 (Klemme B ₊ , B _N)	$U_N = 8 V DC$, je nach Schaltstellung $\leq 0,8 mA$ bzw.
Ausgang 2 (Klemme B ₊ , B _N)	$\geq 2,1 mA$; $R_i = 1 k\Omega$ bzw.
Ausgang 1 (Klemme B ₊ , B _{OC})	Open Collector (pnp-Ausgang)
Ausgang 2 (Klemme B ₊ , B _{OC})	$U_N = 8 \dots 30 V DC$; $I_i \leq 100 mA$; U_i bei durchgeschaltetem Ausgang $\leq 3 V$
Stauseingang (Klemme R ₊ , R _L)	: $U_N = 8 \dots 30 V DC$; $I_i \leq 1 mA$
Fremdkörper- und Wasserschutz	: IP 67 nach EN 60529

(16) Prüfbericht PTB Ex 01-11294

Seite 2/4

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(Translation)

(13)

Schedule

(14)

EC Type Examination Certificate PTB 01 ATEX 1154

(15) Device description

The H.../.../M10-Ex variable-area flowmeter is designed to measure the volume rate of flow of flammable and non-flammable gases and liquids in vertical pipe runs. The flow through the measuring tube is from bottom to top, and the guided float adjusts so that lifting force, form resistance and float weight are in equilibrium. Every vertical position of the float thus corresponds to a specific flow rate. Electromagnetic position sensors in the display section convert the position of the float into an appropriate electrical output signal.

Technical data

Supply (functional extra-low voltage PELV, $U_{DC} \leq 60$ V)

Signal output 4 – 20 mA (terminal I ₊ , I _⊥)	$U_N = 24$ V DC \pm 30%, 2-wire connection with HART communication
Signal output 1 & 2	NAMUR circuit
Output 1 (terminal B ₊ , B _N)	$U_N = 8$ V DC, depending on switch position ≤ 0.8 mA or
Output 2 (terminal B ₊ , B _N)	≥ 2.1 mA; $R_i = 1$ k Ω
	or
Output 1 (terminal B ₊ , B _{OC})	open collector (pnp output)
Output 2 (terminal B ₊ , B _{OC})	$U_N = 8 \dots 30$ V DC; $I_i \leq 100$ mA; U_i with effectively conducting output ≤ 3 V
Status input (terminal R ₊ , R _⊥)	$U_N = 8 \dots 30$ V DC; $I_i \leq 1$ mA

Protection against ingress of foreign bodies and water

IP 67 in conformity with EN 60529

(16) Test report PTB Ex 01-11294

(17) Besondere Bedingungen

keine

Zusätzliche Hinweise für den sicheren Betrieb:

Anschlußbedingungen

1. Das Schwebekörper-Durchfluss-Messgerät H.../.../M10-EEEx ist über dafür geeignete Kabel- und Leitungseinführungen bzw. Rohrleitungssysteme anzuschließen, die den Anforderungen der EN 50018 Abschnitte 13.1 und 13.2 entsprechen und für die eine gesonderte Prüfbescheinigung vorliegt.
2. Kabel- und Leitungseinführungen (Pg-Verschraubungen) sowie Verschlussstopfen einfacher Bauart dürfen nicht verwendet werden. Bei Anschluß des Schwebekörper-Durchfluss-Messgerätes H.../.../M10-EEEx über eine für diesen Zweck zugelassene Rohrleitungseinführung muß die zugehörige Abdichtungsvorrichtung direkt am Gehäuse angeordnet sein.
3. Nicht benutzte Öffnungen sind entsprechend EN 50018 Abschnitt 11.9 zu verschließen.
4. Die Anschlußleitung des Schwebekörper-Durchfluss-Messgerätes ist fest und so zu verlegen, daß sie hinreichend gegen Beschädigung geschützt ist.

Diese Hinweise sind jedem Betriebsmittel in geeigneter Form beizufügen.

Potentialausgleich

Das Schwebekörper-Durchfluss-Messgerät H.../.../M10-EEEx ist in den örtlichen Potentialausgleich einzubeziehen.

Zulässige Umgebungs- und Meßstofftemperaturen in Abhängigkeit von der Temperaturklasse

Temperaturklasse	Umgebungs-temperaturbereich in °C	Höchstzulässige Meßstofftemperatur in °C für Dauergebrauchstemperatur		
		Leitung 70 °C	Leitung 80 °C	Leitung 90 °C
T6	-40 ... +60	85	85	85
T5	-40 ... +50	100	100	100
	-40 ... +60	85	100	100
T4	-40 ... +50	135	135	135
	-40 ... +60	85	135	135
T3 ... T1	-40 ... +40	180	200	200
	-40 ... +50	135	190	200
	-40 ... +60	85	145	200

Die Kabel- und Leitungseinführungen müssen die gleiche Temperaturbeständigkeit wie die Anschlussleitung gewährleisten.

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Allgemeine Hinweise

Brennbare Meßstoffe sind zulässig, sofern dadurch kein explosionsgefährdetes Gasgemisch im Inneren der Anlage gebildet wird. Bei Betrieb mit brennbaren Meßstoffen sind die Meßteile in die wiederkehrende Druckprüfung der Anlage einzubeziehen.

Vor dem Öffnen der Druckfesten Kapselung des Elektronikraumes ist bei den Temperaturklassen T5 und T6 eine Wartezeit von mindestens 8 Minuten einzuhalten.

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

Erfüllt durch die Übereinstimmung mit den vorgenannten Normen.

Zertifizierungsstelle Explosionsschutz
Im Auftrag

Braunschweig, 30. September 2002


Dr.-Ing. U. Klausmeyer
Regierungsdirektor



(Translation)

Physikalisch-Technische Bundesanstalt
Brunswick and Berlin

PTB

Schedule to EC Type Examination Certificate PTB 01 ATEX 1154

General directions

Flammable products are allowed provided they do not form any potentially explosive gas mixture inside the plant. When operated with flammable products, the measuring sections shall be included in the routine plant pressure tests.

Before the Flameproof Enclosure of the electronics compartment is opened, a waiting time of at least 8 minutes shall be allowed to elapse in respect of temperature classes T5 and T6.

(18) Basic health and safety requirements

are satisfied by conformity with the afore-mentioned standards.

Certification Agency
for Explosion Protection

Brunswick, 30st September 2002

On behalf of
(signed)

Official stamp
of the PTB

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

DECLARATION OF CONFORMITY

Konformitätsbescheinigung | Déclaration de Conformité
corresponding to / entsprechend / correspondant à EN 45014



The Level and Flow Company

KROHNE Messtechnik GmbH & Co. KG
Ludwig-Krohne-Str. 5

D-47058 Duisburg
Germany

We declare herewith under sole responsibility that the product(s):
Wir erklären in alleiniger Verantwortung, dass das Produkt / die Produkte:
Nous déclarons sous notre seule responsabilité que le(s) produit(s) :

H ... / ... /M10 - EEx

Variable Area Flow Meter /Schwebekörper Durchflussmesser / Débitmètre à Section Variable

to which this declaration relates is in conformity with the following standards or other normative documents
auf das sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmt.
auquel se réfère cette déclaration est conforme aux normes ou autres documents normatifs

EMV/EMC/CEM: EN 61326: March 1997
+ A1: April 1998
+ A2: March 2001

following the provisions of Directive **89/336/EWG (Electromagnetic Compatibility)**
Gemäß den Bestimmungen der Richtlinie **89/336/EWG (Elektromagnetische Verträglichkeit)**
conformément aux dispositions de Directive **89/336/EWG (Compatibilité électromagnétique)**

Duisburg, April 11th, 2003

General Management / Geschäftsführung / Chef d'entreprise