
Variable-Area Flowmeter

K32

Operating Instructions



Contents

1	IDENTIFICATION.....	4
1.1	Supplier/manufacturer	4
1.2	Product type	4
1.3	Issue date:.....	4
1.4	Version No./ File	4
2	APPLICATIONS.....	4
2.1	K32.....	4
2.2	K32-..V / N differential pressure regulator	4
3	OPERATIONAL MODE AND SYSTEM DESIGN K32	4
3.1	K32 system design.....	4
3.2	Measuring principle for K32-.V / N	4
3.3	K32-..V / N system design	5
4	INPUT.....	5
4.1	Measured variable:.....	5
4.2	Measuring ranges:	5
5	ELECTRICAL OUTPUT (OPTION)	5
5.1	Add-on limit switches Type RC 10/15-14-XX, Make Pepperl & Fuchs	5
5.2	Add-on limit switches Type N7R**A, Maker ifm electronic.....	5
6	MEASURING ACCURACY.....	6
6.1	Reference conditions.....	6
6.2	Measured error	6
6.3	Repeatability.....	6
6.4	Influence of ambient temperature	6
6.5	Influence of fluid temperature.....	6
7	CONDITIONS OF USE	6
7.1	Mounting / start-up.....	6
7.2	Ambient conditions.....	6
7.2.1	Ambient temperature ranges	6
7.2.2	Storage temperature	6
7.2.3	Climatic category	6
7.2.4	Degree of protection	7
7.2.5	Shock resistance/vibration resistance	7
7.2.6	Electromagnetic compatibility	7
7.3	Fluid conditions	7
7.3.1	Fluid temperature ranges.....	7
7.3.2	Fluid pressure limit.....	7
7.3.3	Inlet and outlet sections	7
7.3.4	Physical state:.....	7
7.3.5	Pressure for gas measurement.....	7
7.3.6	Pressure loss	7
8	DESIGN DETAILS	8
8.1	Design/dimensions K32.....	8
8.2	Design/dimensions V / N (option differential pressure regulator)	9
8.2.1	Dimension drawing K32-...N as regulator c/w constant outlet pressure	9
8.2.2	Dimension drawing K32-...V as regulator c/w constant inlet pressure	9

8.3	Weights:	10
8.4	Materials:.....	10
8.5	Process connection:.....	10
9	ELECTRICAL CONNECTION FOR LIMIT SWITCH (OPTION).....	10
10	INDICATOR UNIT	11
11	USE IN HAZARDOUS AREAS.....	11
11.1	Atmospheric Conditions	11
11.2	Electrostatic charge of non-conductive parts.....	11
11.2.1	Ground connection.....	11
11.3	Mechanical strength	11
11.4	Without electrical equipment.....	12
11.5	With limit switch.....	12
12	CE MARKING	12
13	AVAILABLE ACCESSORIES	12
14	ORDER INFORMATION	12
15	STANDARDS AND DIRECTIVES	12
16	SAFETY INSTRUCTIONS.....	13
16.1	Intended use	13
16.2	Installation, start-up and operating personnel.....	13
17	PACKAGING, STORAGE AND SHIPMENT	13
18	MAINTENANCE.....	13
19	RETURNING DEVICES FOR REPAIR AND SERVICE	14
20	DECONTAMINATION CERTIFICATE FOR DEVICE CLEANING.....	15
21	MODEL CODE	16
22	EC TYPE EXAMINATION CERTIFICATE OF THE LIMIT SWITCH.....	17
22.1	Make Pepperl & Fuchs.....	17
22.2	Make ifm electronic.....	17
23	DECLARATION OF CONFORMITY	18

1 Identification

1.1 Supplier/manufacturer

Heinrichs Messtechnik GmbH
Robert-Perthel-Str. 9 · D-50739 Cologne
Phone +49 (221) 49708 - 0
Fax +49 (221) 49708 - 178
Internet: <http://www.heinrichs.eu>
E-mail: info@heinrichs.eu

1.2 Product type

Miniature flow meter based on the variable area flow meter principle. Mounting length 325 mm

1.3 Issue date:

28.07.2017

1.4 Version No./ File

K32_BA_17.01_EN.DOC

2 Applications

2.1 K32

The flow meter can be used for measuring the flow of liquid and gaseous products in pipes. It shows the current flow in volume or mass per unit time.

Applications: Flow metering, dosing, bubbler level measurement, superimposing, monitoring, regulating and controlling of liquid and gaseous media.

2.2 K32-.V / N differential pressure regulator

The flow meter can be used for stabilizing a constant flow of liquid and gaseous products in pipes. The flow is kept constant regardless of pressure changes during product inflow for type K32-.N or of a pressure change during product outflow for type K32-.V.

Applications: Constant dosing, level measurement in open and closed vessels, N₂ superposition of combustible media.

Caution: The devices should be used with the greatest possible caution to measure potentially hazardous liquids and (especially) gases. Precautionary measures must be taken to protect personnel and equipment from any potential danger or damage due to glass-tube breakage. The plant operator is fully responsible. If applicable the use of all metal instruments e.g. KDS should be preferred.

3 Operational mode and system design K32

Float principle:

The product flows through the meter vertically from the bottom to the top. The height of the float in the measuring tube is a measure of the flow quantity. The float is in equilibrium between the buoyant force of the flowing medium and the counteracting force of gravity on the float. The measured value is displayed on the measuring-tube scale with the upper edge or the indicator edge of the float (ball).

3.1 K32 system design

The meter consists of a conical measuring tube made of glass containing a float that can move vertically. The height of the float in the measuring tube reproduces the calibrated flow quantities on the measuring tube.

3.2 Measuring principle for K32-.V / N

Differential pressure regulator:

The diaphragm of the controller is in a state of equilibrium when the pressure conditions are the same on both sides. The pressure on the input side is determined by the pressure of the product; the pressure on the output side is determined by the pressure drop of the setting valve of the flow meter.

If either the inlet or outlet pressure changes, the change in pressure is compensated by the built-in diaphragm valve - thus maintaining a constant set flow rate.

Important: The controller can only regulate inlet or outlet pressure fluctuations. Steady pressure conditions must prevail on the other side.

3.3 K32-..V / N system design

The unit consists of a K32 variable-area flow meter, equipped with a diaphragm differential pressure flow controller. The variable-area flow meter consists of a device fitting with an integrated measuring tube made of glass that contains a vertically movable float and the valve for setting the flow rate.

The differential pressure flow controller is made of stainless steel and consists of a diaphragm made of Viton or PTFE and a compensating valve made of stainless steel. For gaseous products, two versions are available:

K32-...V for a constant inlet pressure and a variable outlet pressure

K32-...N for a constant outlet pressure and a variable inlet pressure

For liquids, both versions can be used; however, the **K32-...V** version should be preferred.

4 Input

4.1 Measured variable:

Volume flow

4.2 Measuring ranges:

(lower-range and upper-range values)

Measuring span water 20 °C

Smallest measuring range: 0,6-0,6 l/h water

Largest measuring range: 5-63 l/h water

Measuring span air 20°C, 1,013 bar abs.

Smallest measuring range: 30-250 NI/h air

Largest measuring range: 180-1800 NI/h air

Measuring /controlling range for K32-..V / N

Span: 10-100%

Smallest measuring/controlling range

0,6-0,6 l/h water 30-250 NI/h air

Largest measuring/controlling range

5-63 l/h water 180-1800 NI/h air

Measuring range table (All ranges at fully opened valve)

Measuring ranges water 20 °C					Measuring ranges air 1,013 bar abs. 20 °C				
Float st.st. 1.4401 (316L) / glass					Float st.st. 1.4401 (316L) / glass				
Range N°	Water l/h	Float material	Ø Valve Seat (mm)	Press. loss (mbar)	Range N°	Air l/h	Float material	Ø Valve Seat	Press. loss (mbar)
K1	0,6-6	1.4401	2,8	2	M1	30-250	1.4401	2,8	2
K2	1,4-11	1.4401	2,8	3	M2	80-380	1.4401	2,8	3
K3	1,6-16	1.4401	2,8	3	M3	50-500	1.4401	2,8	3
K4	2,5-25	1.4401	2,8	3	M4	70-700	1.4401	2,8	3
K5	4-40	1.4401	2,8	5	M5	110-1100	1.4401	2,8	5
K6*	5-63	1.4401	2,8	5	M6	180-1800	1.4401	2,8	5

* Limited adjustment range of the limit switch/ limit switch can only be adjusted as min. contact

5 Electrical output (option)

1 or 2 inductive limit switches,
mono- or bistable

5.1 Add-on limit switches Type RC 10/15-14-XX, Make Pepperl & Fuchs

Monostable Type RC 15-14-N0

Bistable Type RC 15-14-N3

Ex-Marking PTB 99 ATEX 2128 X,
II 2G Ex ia IIC T6

5.2 Add-on limit switches Type N7R**A, Maker ifm electronic

Monostable Type N7R30A (Inside diameter 15 mm)

Bistable Type N7R31A (Inside diameter 15 mm)

Ex-Marking BVS 08 ATEX E026, IECEx BVS 09.0016
II 1G Ga Ex ia IIC T4/T5/T6, II 1D Ex iaD 20 T125°C

When installing electrical equipment in hazardous areas please pay attention to the conditions specified in the approval certificate.

6 Measuring accuracy

6.1 Reference conditions

Water 20°C (air 20°C ; 1,013 bar abs.)

6.2 Measured error

(Liquid/Gas) $\pm 1\%$ $q_G=50\%$ acc.. VDE/VDI 3513 page 2

V / N (option diff.pressure regulator) $\pm 1,5\%$ / $\pm 2,5\%$ FS within 10-100% of the range

6.3 Repeatability

(Liquid/Gas) $\pm 0.3\%$ FS,

V / N (option differential pressure regulator): $\pm 1,5\%$ / $\pm 2,5\%$ FS within 10-100% of the range.

6.4 Influence of ambient temperature

none

6.5 Influence of fluid temperature

Deviations in fluid temperature from the temperature observed during calibration can result in a proportional display fault because of the corresponding change in density and viscosity.

7 Conditions of use

The VDI/VDE guidelines must be observed.

The devices can be used for:

- Liquid products that are sufficiently free-flowing are free of solids, do not bond or do not tend to settle.
- Gases with linear flow behavior and an adequate inlet pressure.

V/N(option differential pressure regulator)

The minimum differential inlet and outlet pressures must be 350 mbar.

Please refer to the instructions for potentially hazardous products in Section 2.2.

7.1 Mounting / start-up

When starting up the flow meter, the following points must be observed:

- The variable-area flow meter must be installed perpendicularly (direction of flow from the bottom to the top).
- Take special care to install glass-tube devices free from strain.
- The size of the product line to be connected must be identical to the size of the device connection.
- All instruments are shipped with the valve installed at the inlet. By turning the glass tube resp. the fitting, the valve also can be installed at the outlet.
- **V/N** (option diff.pressure regulator): When using gases, the version for a constant inlet pressure with "valve at the top" and for a constant counter pressure with "valve at the bottom" should be used. If liquids are involved, the position of the valve does not have any impact on the function of the meter.
- Slowly open the shut-off valve upstream and downstream of the flow meter.
- When measuring liquids, vent the pipes carefully.
- When measuring gases, increase pressure slowly.
- Avoid float impact (e.g. caused by solenoid valves), as this is likely to damage the measuring section or float.

7.2 Ambient conditions

7.2.1 Ambient temperature ranges

-20°C to +100°C (with limit switch -20°+70°C) **(risk of breakage due to frost)**

7.2.2 Storage temperature

-20°C to +100°C

7.2.3 Climatic category

Weather-protected and/or unheated locations,
class C according to IEC 654 Part 1

7.2.4 Degree of protection

IP65 (EN60529)

7.2.5 Shock resistance/vibration resistance

The meter should be protected from shocks and vibrations, which could cause damage.

7.2.6 Electromagnetic compatibility

Built in limit switch:

- acc. NAMUR recommendation NE 21
- Product standard: EN 60947-5-2: 2004

7.3 Fluid conditions

7.3.1 Fluid temperature ranges

without limit switch -20°C to + 100°C

with limit switch -20°C to + 70°C **(risk of breakage due to frost)**

7.3.2 Fluid pressure limit

10bar

Important:

All pressure values are for non-hazardous liquids and for devices installed free from strain.

For **V/N**, (option differential pressure regulator) the maximum unilateral pressure resistance of the diaphragm is **7 bar**.

7.3.3 Inlet and outlet sections

Inlet and outlet sections are not required for a linear flow profile of the fluid.

7.3.4 Physical state:

Liquid or gaseous

7.3.5 Pressure for gas measurement

The measured values only apply to the calibrated fluid data stated on the scale. Any change or deviation in pressure will cause a display fault.

7.3.6 Pressure loss

Depends on the measuring range.

(see measuring range tables in Section 4.2)

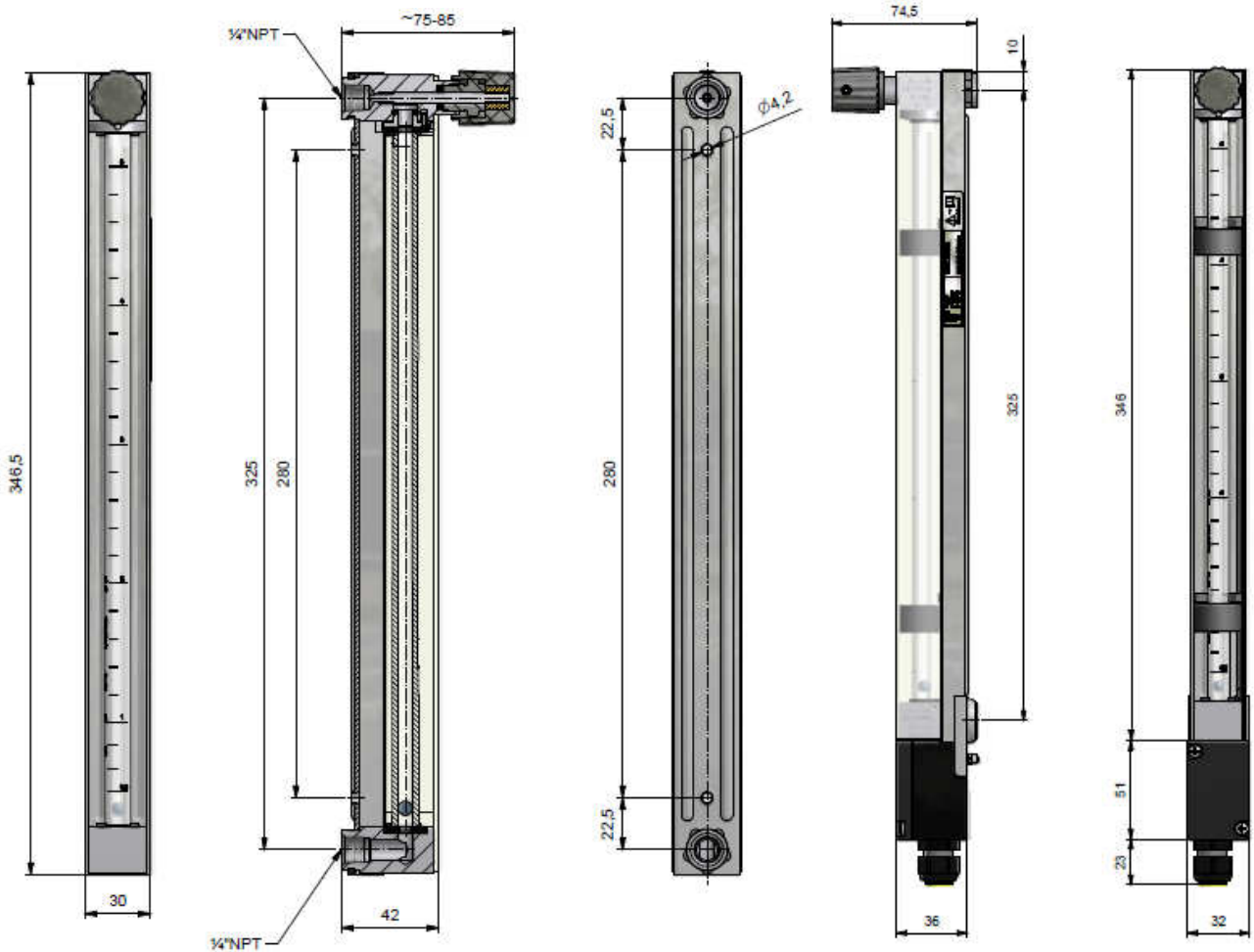
8 Design Details

8.1 Design/dimensions K32

The meter consists of a conical measuring tube made of borosilicate glass with a vertically movable float made of stainless steel or glass. The measuring tube is installed in the device fitting and does have a horizontal connections on the rear.

The standard version of the device is equipped with an adjusting valve at the outlet.

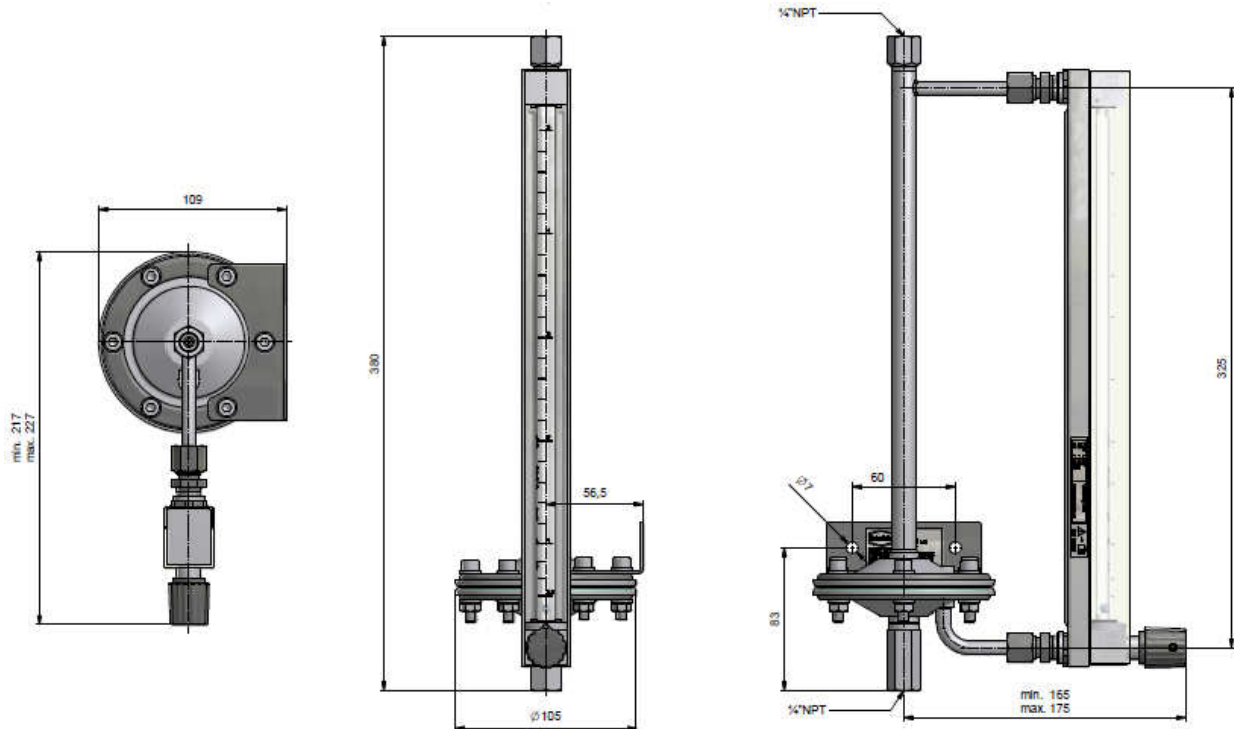
K32 (dimensions in mm)



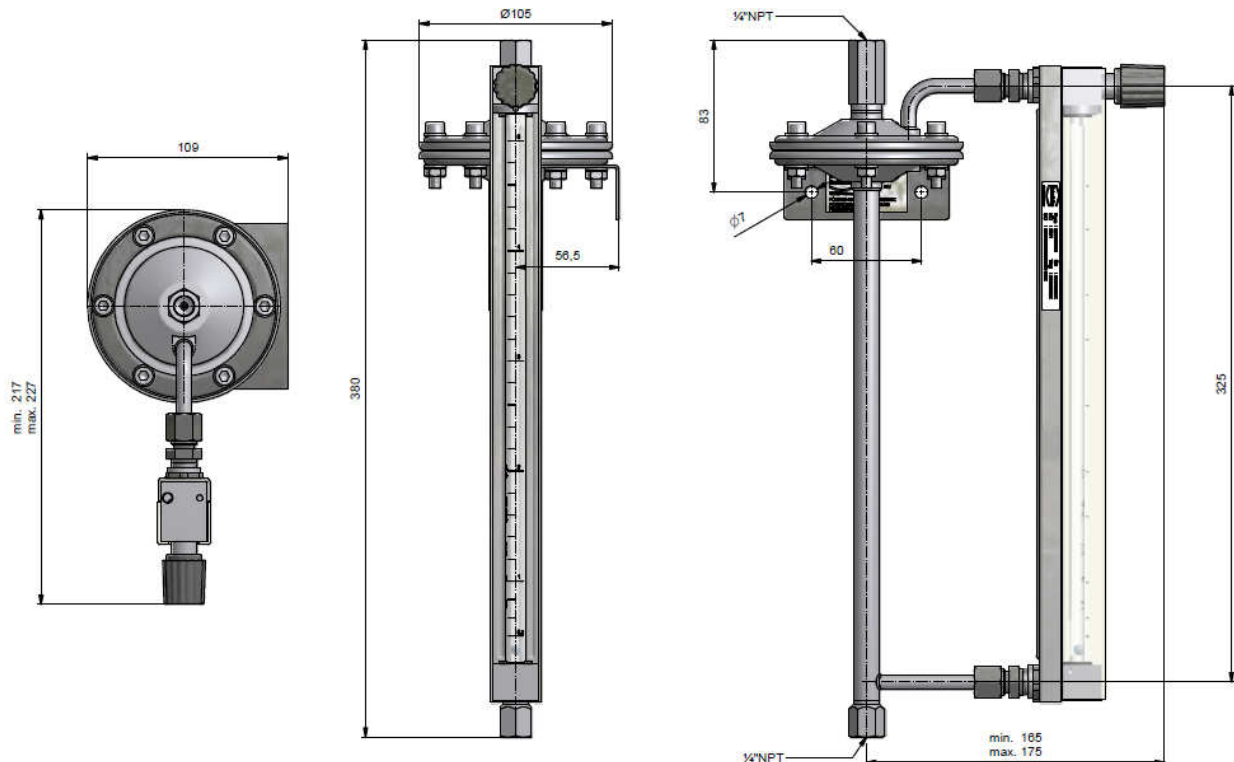
8.2 Design/dimensions V / N (option differential pressure regulator)

The unit consists of a variable-area flow meter with a setting valve and a differential pressure flow controller mounted on the meter. The measured value is indicated via the indicator edge of the float (upper edge of the ball) on the scale of the measuring tube. The desired flow rate can be set using the built-in valve.

8.2.1 Dimension drawing K32-...N as regulator c/w constant outlet pressure



8.2.2 Dimension drawing K32-...V as regulator c/w constant inlet pressure



8.3 Weights:

K32: 0,5 kg, K32- V/N: 0.9 kg

8.4 Materials:

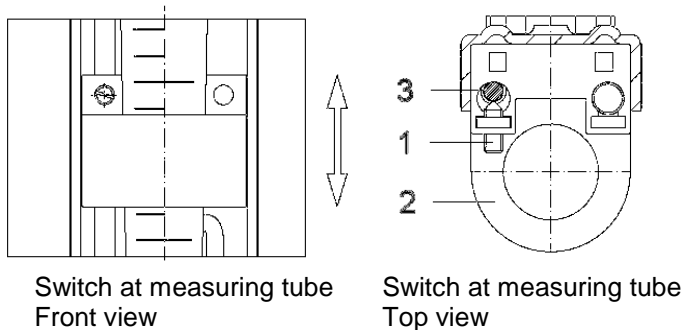
Fitting, connections, setting valve: 1.4404 (316L)
 Float 1.4401 / glass
 Seals measuring tube: Viton, FFKM (option)
 Valve: PTFE, Hoses: PVC
 V/N (option differential pressure regulator)
 Controller/control pipes: 1.4301

8.5 Process connection:

NPT $\frac{1}{4}$ " (F)
 Special connections: Ermeto, Swagelok, G $\frac{1}{4}$ ", Hose connector 8 mm
Important: Other connections are available as special versions

9 Electrical connection for limit switch (option)

with cable end length of 2 m

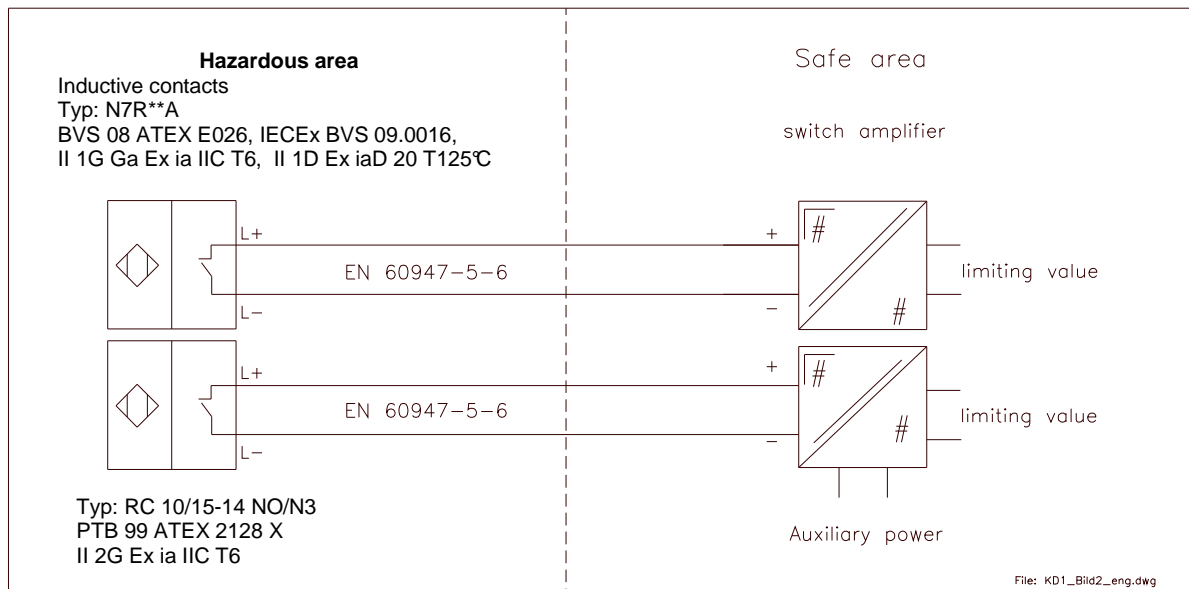


The limit switch (ring form) can be adjusted alongside of the measuring tube. It is fixed via a screw (1) at a guiding rod(3).

Adjusting of the contact:
 -unscrew the fixing screw (1)
 -move contact (2) to bottom or top
 -lock fixing screw (1)

ATTENTION: (limited switching range)
 Measuring ranges B9, D9 and all ranges with glass float cannot be equipped with contact. For the measuring tubes N°B8 and D8 the contact cannot be moved to the max. flow range.

Wiring diagram for 2 limit switches



When using two switch contacts the distance between both contacts must be minimum 16 mm.

10 Indicator unit

Direct indication via the position of the float in the measuring tube

11 Use in hazardous areas



Only devices with ex marking may be operated within the explosive atmospheres range.



11.1 Atmospheric Conditions

Atmospheric conditions In accordance with EN 1127, a “potentially explosive atmosphere” is defined as a mixture of air and combustible gases, vapor, mist or dust under atmospheric conditions. Such conditions are defined in EN 13463-1, para. 1, with values $T_{atm} = -20^{\circ}\text{C}$ to $+60^{\circ}\text{C}$ and $P_{atm} = 0.8$ to 1.1bar . Outside this range, safety parameters for most ignition sources are not available.

Usually, variable-area flow meters operate under operating conditions outside the atmospheric conditions of 0.8 to 1.1bar. Irrespective of the zone classification –safety parameters of explosion protection – are basically not applicable to the inside of the measuring tube.

Therefore operation with combustible products is only allowed if a potentially explosive air mixture is not formed inside the flow meter. Where this condition is not met, the operator will need to assess the ignition hazard in each individual case and give due consideration to existing parameters (e.g. pressure, temperature, process product, materials.)

11.2 Electrostatic charge of non-conductive parts



In hazardous areas pay attention to the risk of the electrostatic charge in a danger threatening amount at cleaning works of the synthetic material housing and glasses. Devices where explosive electrostatic charges can be expected to be generated due to cleaning action are marked with an adhesive label.

Caution! Danger of electrostatic charge! Do not rub!

11.2.1 Ground connection



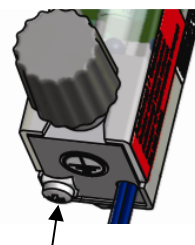
In variable-area flow meters, it is possible under operating conditions for charge separation to occur in the measuring tube due to the transport of non-conductive fluids and/or when the flow comes into contact with non-conductive internals (e.g. liners, floats).

For that reason, variable-area flow meters must be permanently grounded by the operator by way of the process connections (flanges) in order to discharge electrostatic build-up. The operator is also responsible for extending the ground continuity of the process pipeline.

If grounding cannot be made via the process connections (plastic process connections or undefined connections), the flow meter must be connected to the local ground potential. This connection only ensures electrostatic grounding of the device and does not meet the requirements for equipotential bonding.



Grounding at variant with an add-on terminal case.



Grounding at variant without an add-on terminal case.

11.3 Mechanical strength



The device has to be mounted in a way that it is protected against mechanical damages

11.4 Without electrical equipment

The basic version of the flow meter is a non-electrical device without its own ignition source and meets DIN EN 13463-1 requirements. It can be used in hazardous areas that require Category 2 equipment.

Marking



II 2GD IIC TX
Reg. No.: BVS 10 ATEX H-B 034
Tech. File Reg. No. HM-K09-32-ATEX-10-01-X

Since the device does not have its own power sources that would result in a temperature increase, the fluid temperature is decisive for the maximum surface temperature.

11.5 With limit switch

When the limit switch is installed, the device becomes an electrical assembly and receives a marking in accordance with DIN EN 60079.

The electrical and thermal data and the special conditions of the Type Examination Certificate must be observed. (in preparation).

Marking of the limit transducer:

Make Pepperl & Fuchs Typ: RC 15-14 NO/N3		PTB 99 ATEX 2128 X II 2G Ex ia IIC T6 ... T1 Gb
Make ifm electronic Typ: N7R**A		BVS 08 ATEX E026, IECEx BVS 09.0016, II 1G Ga Ex ia IIC T* Ga, II 1D Ex ia T*** °C Da

The influence of the fluid temperature on the built-in limit switch must be observed.

12 CE marking

The measuring system meets the statutory requirements of the following EU directives: Directive 2014/34/EU (Equipment and Protective Systems for Use in Potentially Explosive Atmospheres) and Electromagnetic Compatibility (EMC) Directive 2014/30/EU.

With respect to the Pressure Equipment Directive 2014/68/EU, the devices fall within the scope of application of Article 3, Section 3, and need no CE mark in accordance with this directive. Heinrichs Messtechnik confirms compliance with the directives by attaching the CE mark.

13 Available accessories

- 1 inductive limit switch ; mono-stable or bi-stable
- Special connections

14 Order information

Please include the following information in your order: Product data,(specific weight, temperature, pressure, viscosity) material design, connection size, measuring range, desired accessories, required approvals and material certificates.

15 Standards and directives

- Measuring range rated and converted to other products according to VDE/VDI guidelines 3513
- Directive 2014/68/EU (Pressure Equipment Directive)
- Directive 2014/34/EU (Equipment and Protective Systems for use in Potentially Explosive Atmospheres.

For the electrical sensor

- EN 60079-0 General regulations
- EN 60079-11 intrinsically safeness
- Guideline 2014/30/EU (EMC guideline)
- NAMUR recommendation NE 21
- EN 60529 – Degrees of protection through housing (IP code)
- EN 61010 – Safety requirements for electrical measuring, control and laboratory devices
- EN 60947-5-6:2000 – Switchgear and controlgear

16 Safety instructions

16.1 Intended use

The K32 variable-area flow meter may be used only for flow measurements of fluid and gaseous media. The manufacturer shall not be liable for damage that may result from improper or unintended use. When dealing with an aggressive medium, clarify the material durability of all wetted parts.

16.2 Installation, start-up and operating personnel

Only trained specialists authorized by the system operator may carry out the installation, electrical installations, start-up, maintenance and operation. They must read and understand the operating manual and follow its instructions.

Basically, follow the conditions and provisions applicable in your country.

17 Packaging, storage and shipment

Carefully unpack the device to avoid damaging it. With the help of the delivery note enclosed in the packaging, check whether all technically relevant data coincide with your requirements.

Storage and installation must be done in a clean and dry room so that contamination – especially of the interior of the fitting – is avoided. Follow the limit values for ambient temperature.

When transporting the device to a remote mounting location, we recommend that you reuse the factory-issued packaging and the transport protection.

18 Maintenance

If you use the meter in the intended manner special maintenance is not necessary. However, the variable area flow meter should be checked in the context of the routine maintenance of the facility and the pipelines. You have to eighth especially for dirt, corrosion denudation, mechanical wear as well damage at the glass cone. We recommend checking the meter once a year.

In the recurrent pressure test of the system, the maximum allowed pressure test PT (see name plate) must not be exceeded.

Attention

If cleaning of the float or of the measuring cone is necessary due to contamination, please note following items:

- Before removing a device, make sure that the pipe line is empty (no product residues) depressurized and cooled.
- For devices that are used to measure corrosive or hazardous media, appropriate security precautions have to be taken regarding any remaining liquid in the measuring unit
- Avoid electrostatic charging of surfaces when cleaning non-conductive surfaces (e.g. protective hood)
- Having dismantled the device, dirt on the inside of glass measuring cones can be gently cleaned with a brush and appropriate media.
- When assembling and reinstalling the system always new gaskets have to be used.

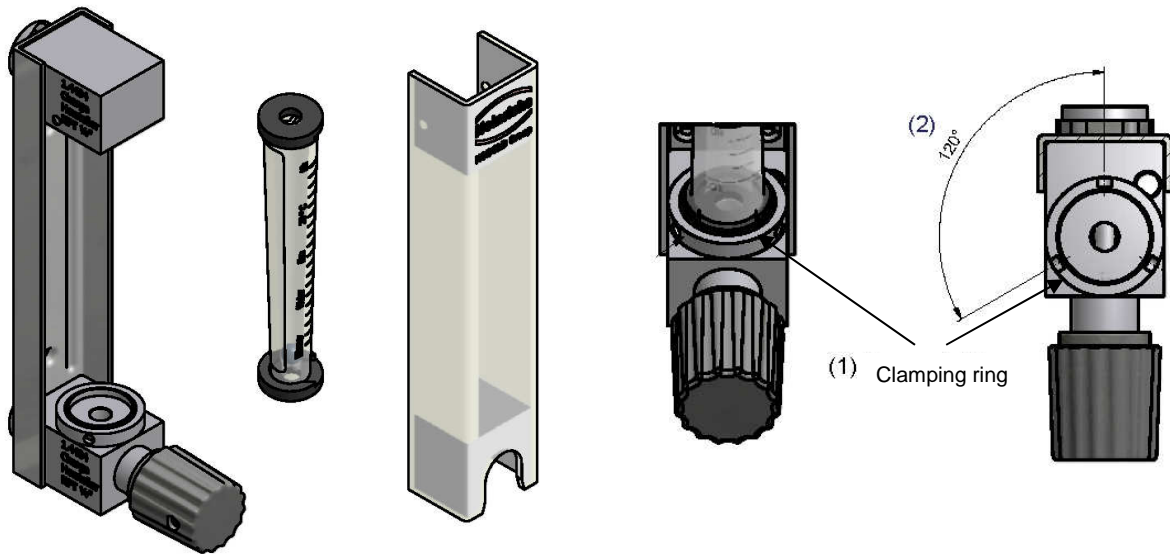
Replacing the measuring cone

Removal:

- Close valve in front and behind the unit
- Close needle valve of the device
- Shift protective cover upwards and remove to the front.
- By turning the adjusting ring at the unit base counterclockwise the measuring glass can be loosened and removed.

Installation:

- Installation has to be carried out in reverse order
- The measuring glass is fixed by clamping the adjusting ring on the unit base hand tightened
- With a 3 mm pin the clamping ring is fixed by **4, max. 5 120°turns** clockwise.
- The torque should be max 2, 8 to 3 Nm.
- Caution! To avoid breaking of the glass flow tube it has to be installed centrally between the seals.
- Before re-commissioning the tightness of the measuring device has to be checked by suitable means.



Attention

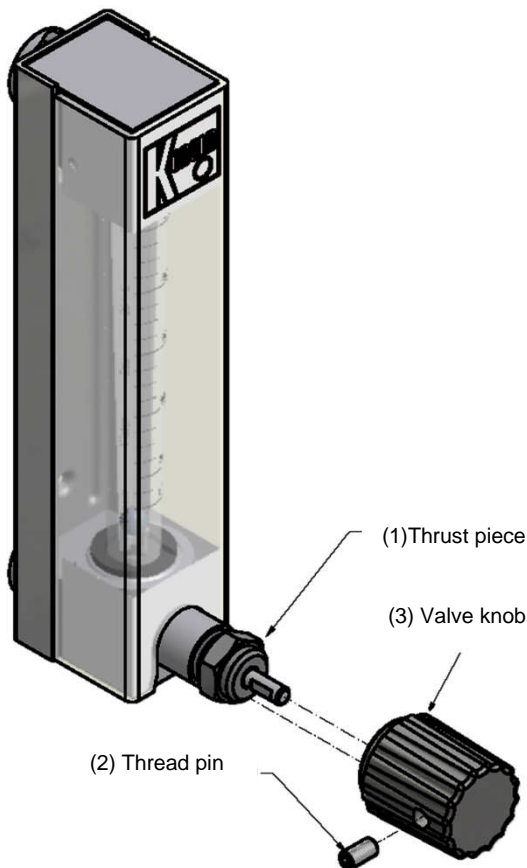
The shaft packing of the valve must be readjusted during the life cycle. This requires tightening of the thrust piece (1)

Loosen thread pin (2) M4x8 with hexagon 2mm and remove valve knob (3).

Tighten thrust piece (1) SW14 with a torque of 3, 8 Nm - 4, 0 Nm

Caution

Valves that have not been operated for a long time may require a higher operating torque.



19 Returning devices for repair and service

Note:

In accordance with the applicable German waste disposal legislation, the owner/client is responsible for the disposal of special waste and hazardous materials. Consequently, all devices sent to us for repair must be free of any hazardous materials. This also applies to possible hollow spaces and fissures in the devices.

If repair is necessary, confirm the above-mentioned requirement in writing (**please use the form in the Appendix**).

If hazardous materials remain in or on the device after it has been returned, Heinrichs Messtechnik is authorized to remove them at the client's expense without further inquiry.

20 Decontamination certificate for device cleaning

Company:

City:

Department:

Name:

Tel:

This variable-area flowmeter

Type K32.....

was operated using the measured medium.....

Since this measured medium is dangerous in
water*/poisonous*/corrosive*/flammable*,

we have

- checked that all hollow spaces of the device are free of these materials*
- neutralized and flushed all hollow spaces of the device*

*cross out what is not applicable.

We hereby confirm that in resending the device no danger to persons or the environment is posed by the residual measured substance.

Date: Name:..... Signature:

Stamp

21 MODEL CODE

Series			Accessories	
K32-	Mounting length 325		Mounting options	
			0	w/o
			W	Panel Mount (not with terminal conn. Box)
Connection			Contacts	
N	Internal thread 1/4"		0	w/o
G	Internal thread G 1/4" (not with V / N regulator.)		M	Inductive contact, ring type mono -stable
X	Sonderanschluss (on request)		B	Inductive contact, ring type bi-stable
Connection access.			N° of contacts	
0	without		0	w/o
1	1/4"-NPT Hose gewi- for Ø8mm, angled		1	1x
2	1/4"-NPT Hose für Ø8mm, angled		2	2x
Valve position			Terminal box	
0	without		0	w/o
1	outlet	Standard	A	c/w
2	inlet		Flow – diff.pressure regulator (No panel mount, NPT only)	
Ranges			00	w/o
M1	Air (NI/h)	30-250 Ball 1.4401	VV	inlet pressure constant / outlet pressure variable (HV)
M2	Air (NI/h)	80-380 Ball 1.4401	NV	Outlet pressure constant / inlet pressure variable (HN)
M3	Air (NI/h)	50-500 Ball 1.4401	VP	inlet pressure constant / outlet pressure variable (HV)
M4	Air (NI/h)	70-700 Ball 1.4401	NP	Outlet pressure constant / inlet pressure variable (HN)
M5	Air (NI/h)	110-1100 Ball 1.4401	Approvals	
M6	Air (NI/h)	180-1800 Ball 1.4401	0-	w/o
N1	Air (NI/h)	10-130 Ball Glass	1-	ATEX II2G (Gas, Zone 1)
N2	Air (NI/h)	20-200 Ball Glass		
N3	Air (NI/h)	20-260 Ball Glass		
N4	Air (NI/h)	40-400 Ball Glass		
N5	Air (NI/h)	70-700 Ball Glass		
N6	Air (NI/h)	100-1000 Ball Glass		
K1	H ₂ O (l/h)	0,6-7 Ball 1.4401	H	Heinrichs
K2	H ₂ O (l/h)	1,4-11 Ball 1.4401	K	KOBOLD
K3	H ₂ O (l/h)	1,6-16 Ball 1.4401	N	Neutral
K4	H ₂ O (l/h)	2,5-25 Ball 1.4401	X	Special
K5	H ₂ O (l/h)	4-40 Ball 1.4401	Marking	
K6	H ₂ O (l/h)	5-63 Ball 1.4401	0	w/o
L1	H ₂ O (l/h)	0,25-2,5 Ball Glass	1	st.st. plate 40x20mm
L2	H ₂ O (l/h)	0,4-4 Ball Glass	Certificates	
L3	H ₂ O (l/h)	0,5-6,5 Ball Glass	0	w/o
L4	H ₂ O (l/h)	1,2-10 Ball Glass	1	Certificate of compliance acc. EN10204 2.1
L5	H ₂ O (l/h)	1,8-16 Ball Glass	2	Certificate of compliance acc. EN10204 2.2
L6	H ₂ O (l/h)	2,8-28 Ball Glass	Pressure and leak testing	
XX	Special range	On request	0	without
			1	Supplier test report M acc. DIN 55350 incl. pressure test
			2	Supplier test report M acc. DIN 55350 incl. leak test (air)
Scaling			Calibration report	
0	Standard range		0	without
1	% -Scale(H ₂ O)		1	Confirmation of the accuracy class
2	Productscale		2	5 point calibration report
3	Productscale %		4	Special acc. request
X	Special		Cleaning	
Dichtung Messrohr			0	without
V-	Viton	Standard	1	Cleaning (oxygen service) "oil and grease free"
P-	FFKM		2	Cleaning (oxygen service) incl. Marking "oil and grease free"
M-	PTFE			
X-	Special			

22 EC Type Examination Certificate of the limit switch

22.1 Make Pepperl & Fuchs

Note: actual certificates see our homepage/download area K32

22.2 Make ifm electronic

Note: actual certificates see our homepage/download area K32

23 Declaration of Conformity



Konformitätserklärung Declaration of Conformity

Nº. 16.4132.01

Hersteller:
Manufacturer:

Heinrichs Messtechnik GmbH
Robert-Perthel-Strasse 9
50739 Köln

Produktbeschreibung:
Product description:

Schwabekörper-Durchflussmessgerät vom Typ K09 bis K32
Variable Area Flowmeter Model K09 to K32

Hiermit erklären wir, in alleinige Verantwortung, dass das oben genannte Messsystem den Anforderungen der folgenden EU-Richtlinien, einschließlich allen bis heute veröffentlichten Änderungen bzw. Nachträgen entspricht:

We declare herewith, in sole responsibility, that the product described above is conform with the provisions of the following EU-directives, including all published changes and amendments as of today:

2014/30/EU (EMC)
(nur für Geräte mit Sensor)

EU-Richtlinie über die Elektromagnetische Verträglichkeit
EU-Directive relating to electromagnetic compatibility

2014/34/EU (ATEX)

EU-Richtlinie über Geräte zur Bestimmungsgemäße Verwendung in explosionsgefährdeten Bereichen.
EU-Directive relating to electrical equipment intended for use in potentially explosive atmospheres

Anhang N und X sind ein integraler Bestandteil dieser Erklärung
Annex N and X are an integral part of this declaration

Köln, den 02.09.2016

Frank Schramm
(Geschäftsführung / General Manager)

Kontakt :
Contact:

Tel: +49 (221) 49708-0
Email: info@heinrichs.eu
Web: www.heinrichs.eu



Anhang N zur Konformitätserklärung Annex N of the Declaration of Conformity

Nº. 16.4132.01

Produktbeschreibung: **Schwebekörper-Durchflussmessgerät vom Typ K09 bis K32**
 Product description: **Variable Area Flowmeter Model K09 to K32**

Die Konformität mit den auf Seite 1 genannten Richtlinien diese Erklärung wird nachgewiesen durch die Einhaltung folgenden Normen (gegebenenfalls abhängig von Gerätvariante):
 Conformity to the Directives referred to on Page 1 of this Declaration is assured through the application of the following standards (possibly dependent on version of device):

X: Zutreffende Norm / Applicable Standard

Richtlinie Directive	Norm –Ref. Nr. Standard / Ref. Nº.	Ausgabe Edition	Norm Beschreibung Standard Description					Anbau elektrische Sensor Add-on electrical sensors
	DIN EN -			K09	K12	K17	K32	
2014/30/EU	61000-6-2	2011-06	Immunity Industrial environment					X
	61000-6-3	2012-11	Emission residential environment					X
	55011	2011-04	Radio frequency disturbance					X
	61326-1	2011-07	EMC requirements					X
2014/34/EU	60079-0	2012+A11	General requirements					X
	60079-11	2012	Intrinsic Safety „i“					X
	1127-1	2008-2	Grundlagen und Methodik	X	X	X	X	
	13463-1	2009-07	General requirements non electrical devices	X	X	X	X	

Name und Anschrift der Benannte Stelle / Name and Address of the Notified Body

TÜV-SÜD-Industrie Service GmbH
 TÜV SÜD Gruppe
 Westendstraße 193
 D-80686 München

DEKRA EXAM GmbH
 Carl-Beyling-Haus
 Dinnendahlstraße 9
 D-44809 Bochum



ID-Nr. / ID-Nº.: RL 2014/34/EU: 0158



Anhang X zur Konformitätserklärung Annex X of the Declaration of Conformity

Nº. 16.4132.01

Produktbeschreibung: **Schwebekörper-Durchflussmessgerät vom Typ K09 bis K32**
 Product description: **Variable Area Flowmeter Model K09 to K32**

Gerät Zulassungen / Device certification

EG-Baumusterprüfbescheinigung <i>EC-type examination certificate</i>	Nachtrag <i>Supplement</i>	Kennzeichnung <i>Marking</i>				
			K09	K12	K17	K32
BVS 10 ATEX H/B 034	-	II 2GD	X	X	X	X
<i>Tech. File Ref.</i>	-	<i>HM-K09-32-ATEX-10-01X</i>	X	X	X	X

X: Zutreffende Norm / Applicable Standard

Konformitätserklärungen für die als Option verwendeten Schalter werden von der Hersteller auf deren Homepage bereitgestellt.

For proximity switches offered as an option in conjunction with the above-mentioned products, the Declarations of Conformity are provided by the switch manufacturer on their homepage.

Die oben genannten Produkte entsprechen der Richtlinie 2014/34/EU. Neue Editionen können bereits eine oder mehrere der in den jeweiligen EG-Baumusterprüfbescheinigungen genannten Normen ersetzt haben.

Der Hersteller erklärt, dass alle in dieser Konformitätserklärung erwähnt Produkte auch die Anforderungen der neuen Ausgaben einhalten, da die veränderten Anforderungen der neuen Ausgaben entweder keinen Einfluss auf das Produkt haben, oder das Produkt die Anforderungen erfüllt.

The above-mentioned products comply with the Directive 2014/34/EU. New editions may have already replaced one or more of the Standards stated in the respective EC-Type-examination certificates. The manufacturer declares that all products mentioned in this Declaration of Conformity also comply with the requirements of the new editions since either the changed requirements of the new editions do not affect the product, or the product also fulfills the requirements.