



### DESCRIPTION

The small flow sensors Vision measurement technology is ideal for the accurate measurement of low viscous and non-aggressive fluids. The Vision 2000 series is most suited for the measurement of flow rates from 0.5...35 l/min.

The flow sensors can be mounted in any position.

### MEASURING PRINCIPLE

Flow sensors are indirect volumetric meters. When the fluid passes through, a rotor is activated and the movement is either electronically or mechanically transmitted outside. The rotor is turned by the fluid force, proportional to the flow rate. A Hall effect sensor detects the passage of the rotor and supplies pulses, which can be utilized for digital or analogue signal processing. The generated pulses are specified as the K-factor. The large number of pulses provides high resolution. As the mass of the turbine is very small the response time is very short. It is not necessary to install a straight length of pipeline at the upstream side of the meter.



### SPECIFICATIONS

#### Type

Vision 2006

Vision 2008

#### Performance

<b>Flow rate</b>	0.5...35 l/min
<b>Accuracy</b>	±3% of reading
<b>Repeatability</b>	< 0.5% under the same operating conditions
<b>Operating Temperature</b>	-20...100° C
<b>Operating Pressure Rate</b>	Max. 25 bar; with push-fit connector 10 bar (+20° C) and 7 bar (+65° C)
<b>Burst Pressure</b>	100 bar

#### Pickup

<b>Pulse Sensor</b>	Hall sensor
<b>Input Power</b>	5...24V DC
<b>Output Signal</b>	Open collector (NPN sinking) @ max. 20 mA, 1...2.2 kOhm pullup resistor required
<b>Power Consumption</b>	Approximately 8 mA



**K-factor**

Version	Material	Nominal Size	Flow Range	K-Factor
VISION 2008 4F17	Trogamid CX7323	8 mm	2...35 l/min	750 pulse/liter
VISION 2008 4F17	Grilamid, reinforced fiberglass	8 mm	2...35 l/min	750 pulse/liter
VISION 2008 4F22	Trogamid CX7323	8 mm	1...25 l/min	1000 pulse/liter
VISION 2008 4F22	Grilamid, reinforced fiberglass	8 mm	1...25 l/min	1000 pulse/liter
VISION 2008 4F22	Brass	8 mm	3...25 l/min	920 pulse/liter
VISION 2008 4F44	Trogamid CX7323	8 mm	1...15 l/min	2200 pulse/liter
VISION 2008 4F44	Grilamid, reinforced fiberglass	8 mm	1...15 l/min	2200 pulse/liter
VISION 2006 4F44	Trogamid CX7323	6 mm	1...10 l/min	3300 pulse/liter
VISION 2008 2F66	Brass	8 mm	2...8 l/min	4200 pulse/liter
VISION 2008 2F66	Trogamid CX7323	8 mm	0.5...7.5 l/min	4700 pulse/liter
VISION 2008 2F66 (66122, 56139)	Grilamid, reinforced fiberglass	8 mm	0.5...7.5 l/min	4700 pulse/liter
VISION 2008 2F66 (66131, 66133)	Grilamid, reinforced fiberglass	8 mm	0.5...7.5 l/min	5100 pulse/liter
VISION 2006 2F66	Trogamid CX7323	6 mm	0.5...5 l/min	6900 pulse/liter

**Material**

<b>Housing</b>	Trogamid CX7323
	Brass
	Grilamid LV-50H FWA nature, reinforced fiberglass
<b>Rotor</b>	PPS Ferrite bound
<b>Bearings</b>	2 PTFE / Graphite bearings (standard), bearings without added graphite for VE water or Hostaform bearings for contact with foodstuffs

**Fluids**

<b>Viscosity</b>	0.8 – 16 mm <sup>2</sup> /sec (mPas/cST)
<b>Fluid type</b>	Liquids
<b>Filter</b>	20...40 micron recommended

**Installation**

<b>Nominal Size DN</b>	6 mm, 8 mm
<b>Mounting Position</b>	In any orientation, observe flow direction
<b>Electrical Connection</b>	3 Pin (2.8 × 0.5) for MINI DIN Connector, EN 60529
	Round cable 3 × AWG 24 with free cable ends
	AMP Faston 2.8/6.3 × 0.8
<b>IP Protection Class (DIN Connector)</b>	IP67
<b>Mechanical Connection</b>	Trogamid: G 3/8 in., NPT 3/8 in., O-ring, Hose nipple
	Brass: G 3/8 in., NPT 3/8 in.
	Grilamid, fiberglass: G 3/8 in., Hose nipple, integrated push-fit connection for tube 10 mm or 3/8 in.
<b>Tightening Torque for Screwed Connection</b>	Approximately 6 Nm

**Weights**

Housing	Connector	Weight
Trogamid CX7323	DIN	20 g
Trogamid CX7323	1 m cable	40 g
Trogamid CX7323	AMP Faston	10 g
Grilamid LV-50H FWA	DIN	30 g
Grilamid LV-50H FWA	DIN, push-fit	45 g
Grilamid LV-50H FWA	1 m cable	60 g
Brass	DIN	85 g
Brass	1 m cable	105 g

**Approvals**

VISION with housing of	Approvals
Trogamid CX7323	KTW-BWGL, NSF/ANSI 61, WRAS, ROHS, CE, UKCA
Brass	ROHS, CE, UKCA
Grilamid LV-50H FWA	KTW-BWGL, ROHS, CE, UKCA

## PRESSURE DROP

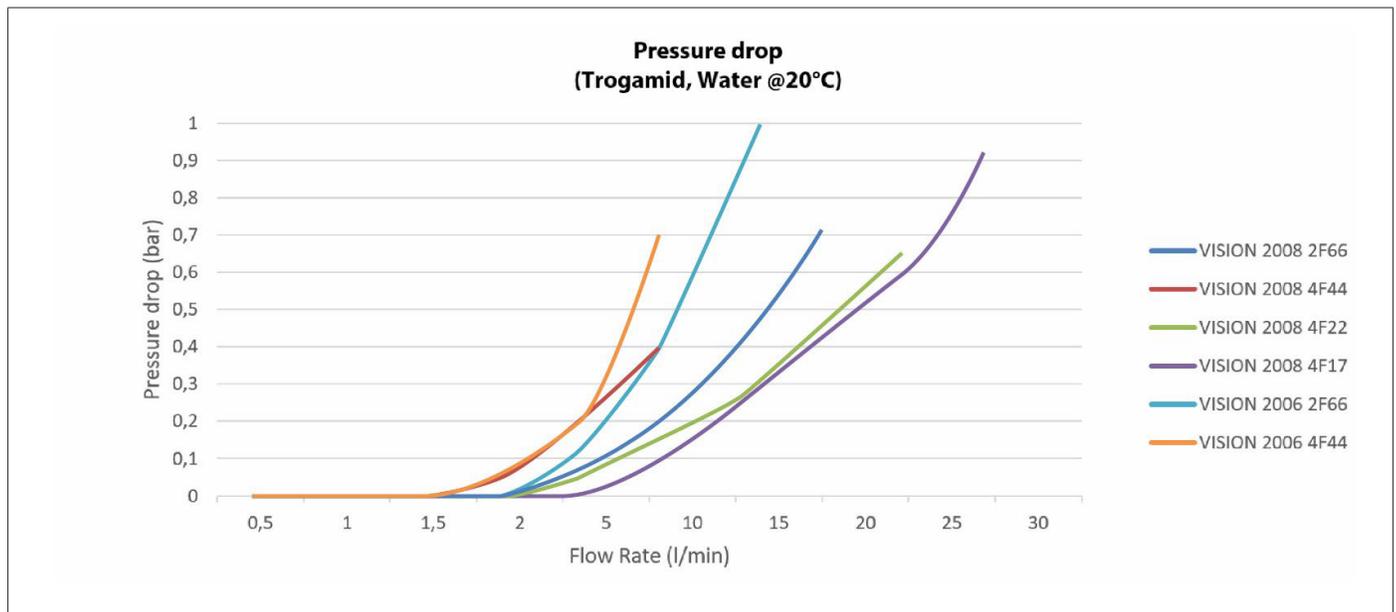


Figure 1: Trogamid, water @ 20°C

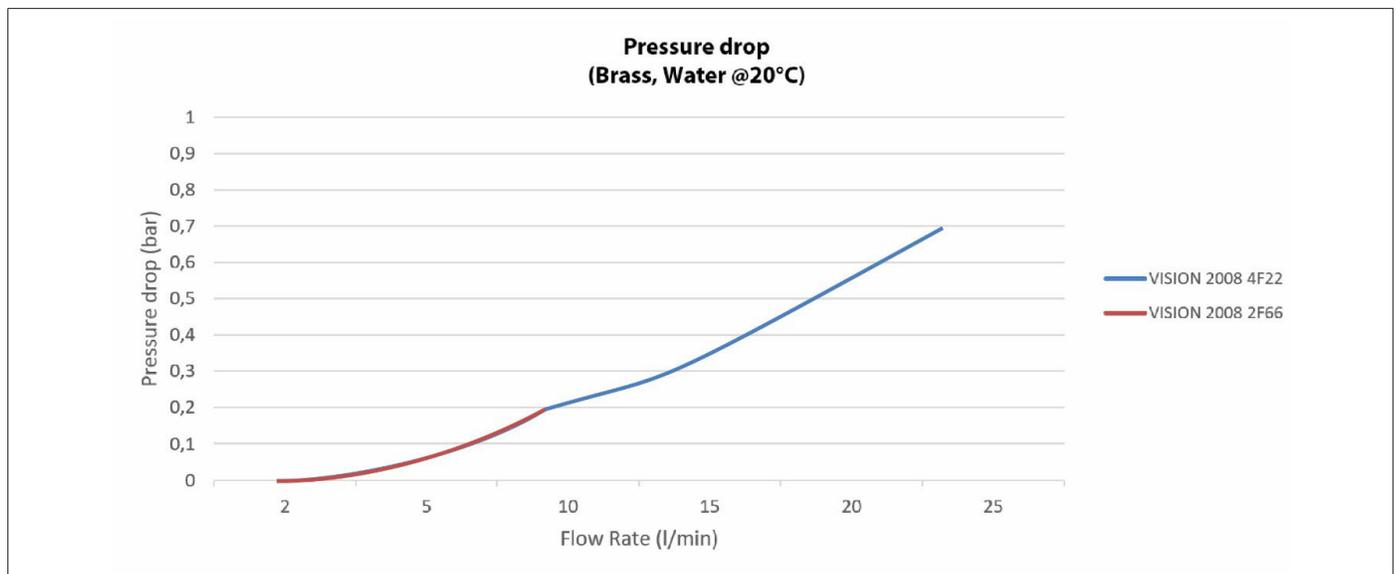


Figure 2: Brass, water @ 20°C

**DRAWINGS**

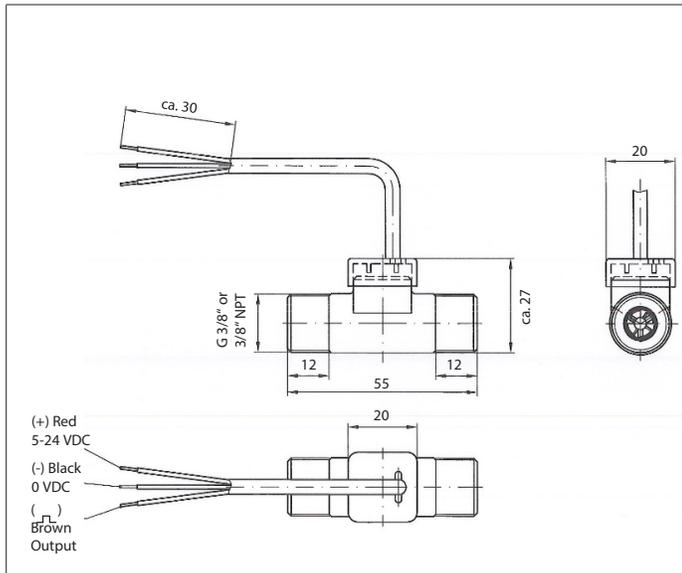


Figure 3: Round cable

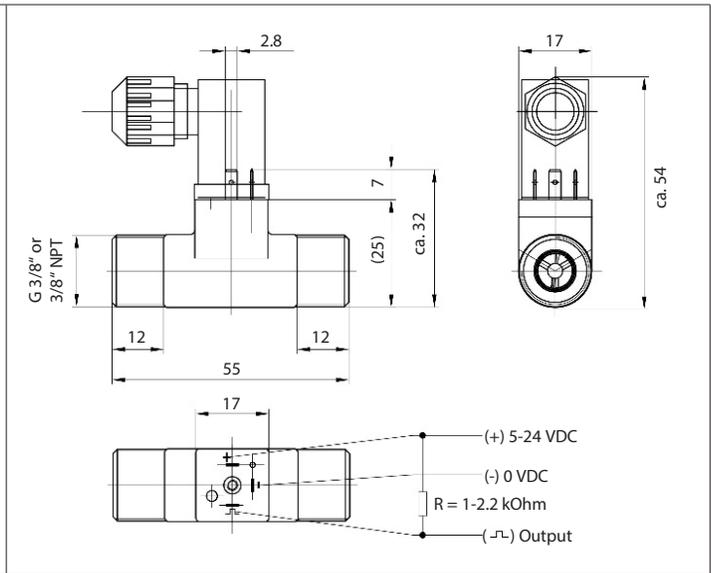


Figure 4: DIN connector

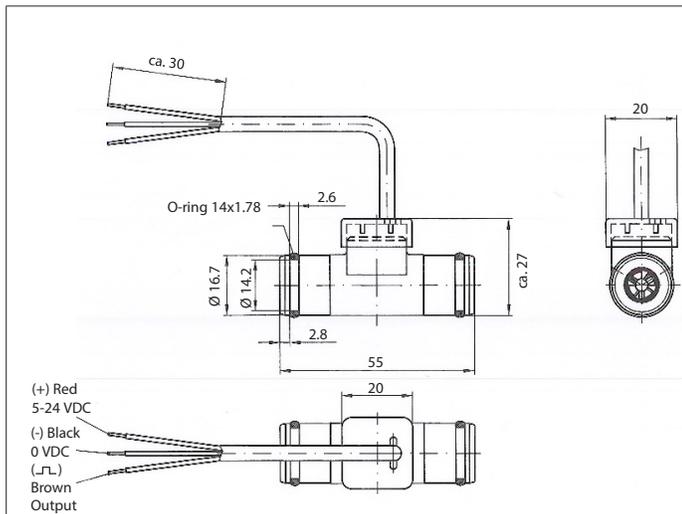


Figure 5: O-ring and round cable

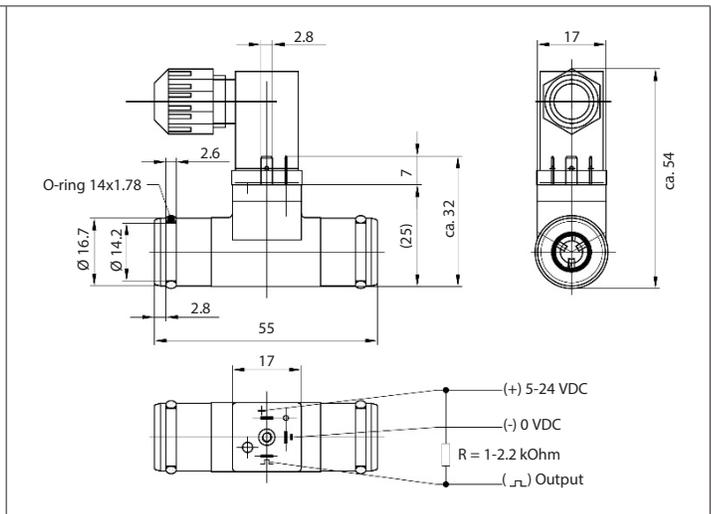


Figure 6: O-ring and DIN connector

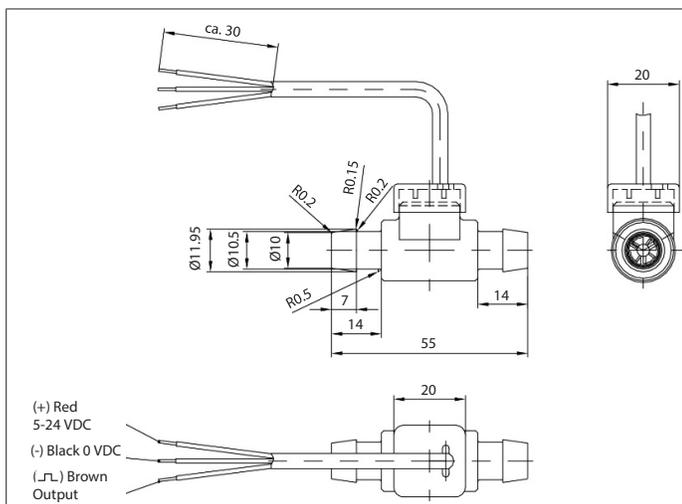


Figure 7: Hose nipple and round cable

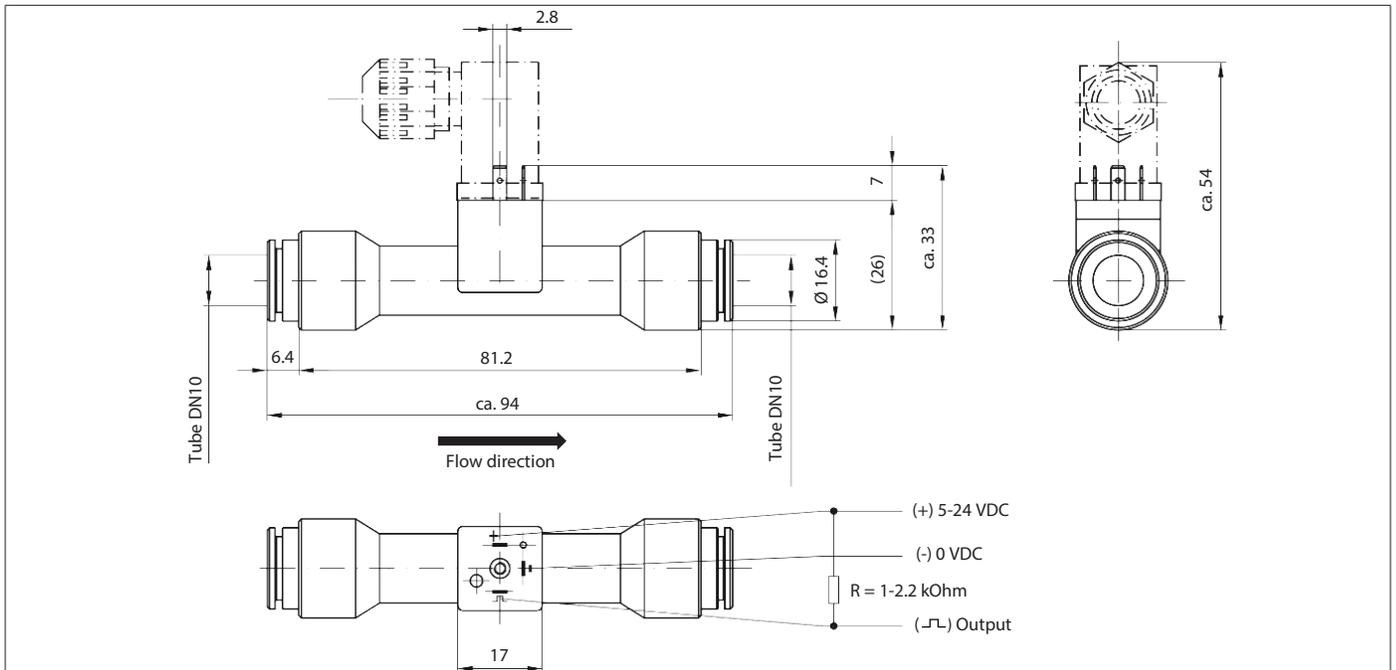


Figure 8: Push-fit (DN10) and DIN connector

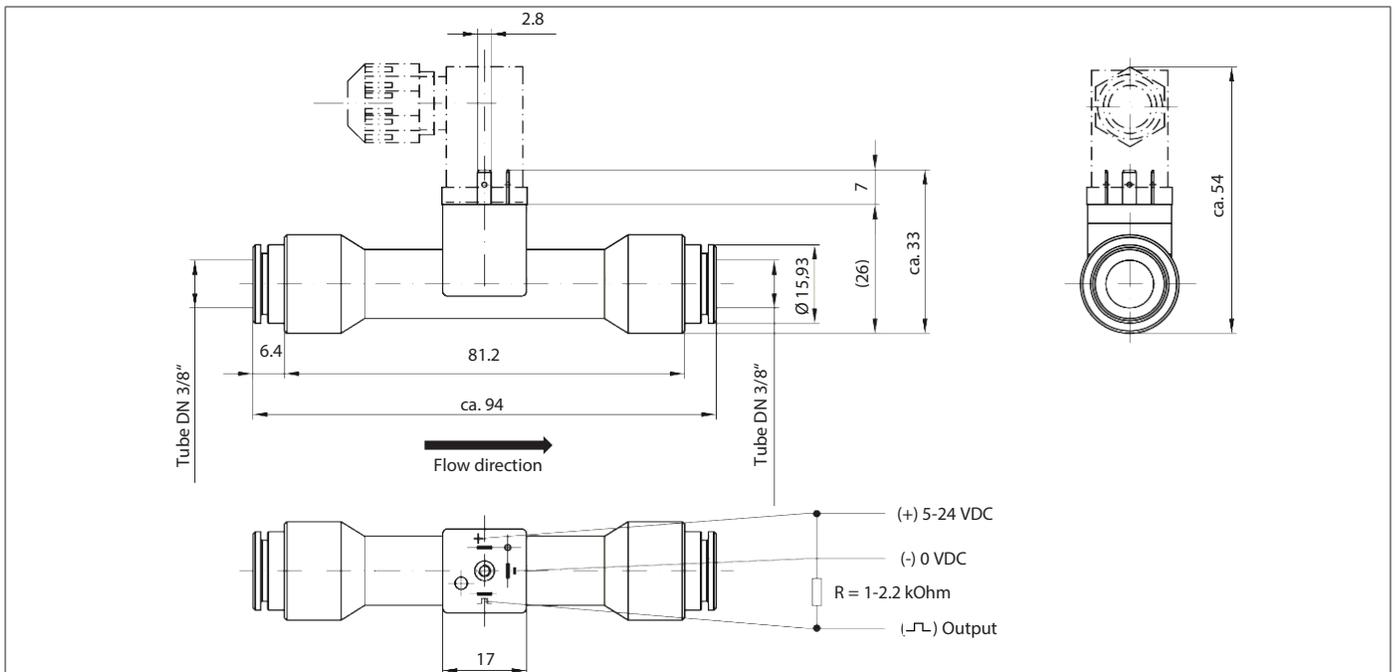


Figure 9: Push-fit (3/8 in.) and DIN connector

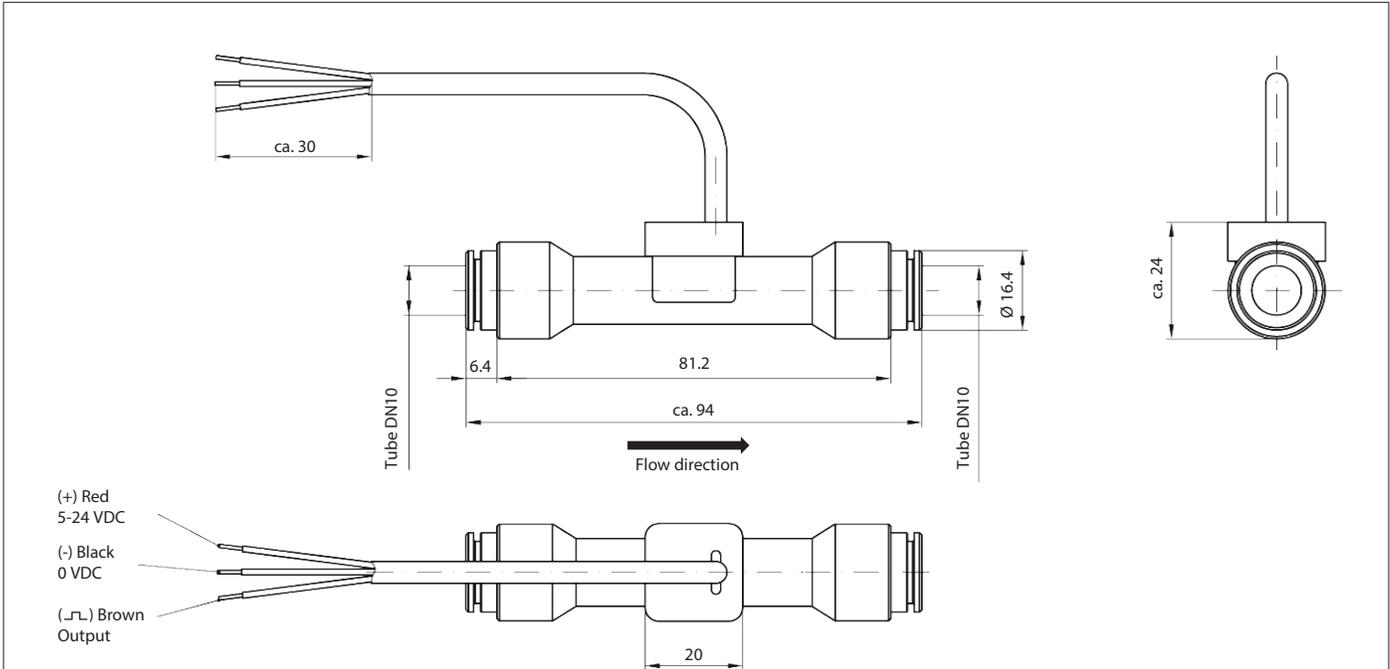


Figure 10: Push-fit (DN10) and round cable

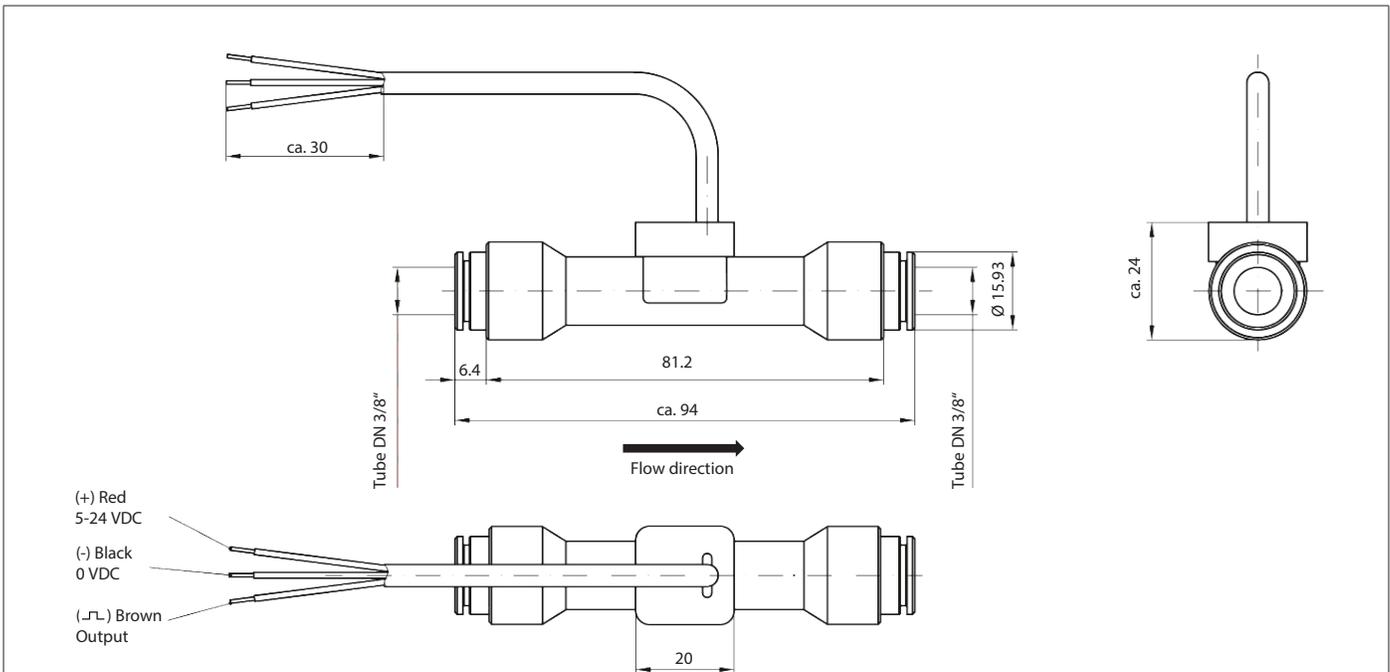


Figure 11: Push-fit (3/8 in.) and round cable

## ELECTRICAL WIRING

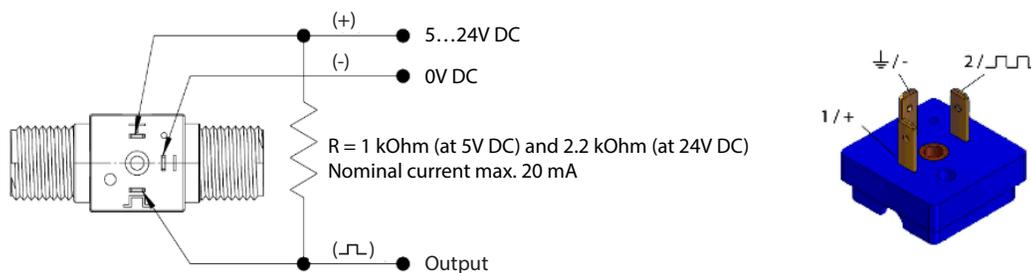


Figure 12: Hall sensor

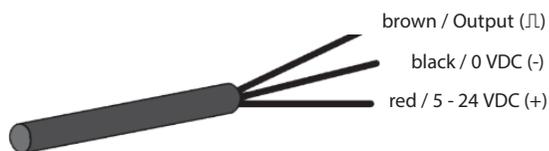


Figure 13: Cable connection



Figure 14: Faston connection

## ORDERING MATRIX - VISION 2000 IN TROGAMID

Select process and electrical connection	Code			
<b>Mechanical connector:</b>				
VISION 2008, G 3/8"	56500			
VISION 2008, NPT 3/8"	56502			
VISION 2008, O-Ring	56520			
VISION 2008, Hose nipple	56138			
VISION 2006, G 3/8"	56510			
VISION 2006, NPT 3/8"	56512			
VISION 2006, O-Ring	56521			
VISION 2006, Hose nipple	56138			
<b>Electrical connection:</b>				
DIN connector				
AMP Faston	-163			
Cable – select cable length, see option	-164			
	-165			
<b>Turbine model:</b>				
VISION 2008				-4F17
VISION 2008				-4F22
VISION 2008				-4F44
VISION 2008				-2F66
VISION 2006				-4F44
VISION 2006				-2F66
<b>Option cable length:</b>				
1 m (standard)				-1
2 m				-2
3 m				-3
<b>Examples:</b>				
VISION 2008 2F66 G3/8" + DIN connector	56500	-163	-2F66	
VISION 2008 4F17 G3/8" + AMP Faston	56500	-164	-4F17	
VISION 2008 4F22 O-Ring + 1m cable	56520	-165	-4F22	-1
VISION 2006 2F66 O-Ring + DIN connector	56521	-163	-2F66	
VISION 2006 2F66 G3/8" + AMP Faston	56510	-164	-2F66	
VISION 2006 4F44 G3/8" + 1m cable	56510	-165	-4F44	-1

## ORDERING MATRIX - VISION 2000 IN FIBERGLASS

Select process and electrical connection	Code			
<b>Mechanical connector:</b>				
G 3/8"	66122			
Hose nipple	56139			
Integrated Push-fit connection tube 3/8"	66131			
Integrated Push-fit connection tube nominal 10 mm	66133			
<b>Electrical connection:</b>				
DIN connector		-163		
Cable – select cable length, see option		-165		
<b>Turbine model:</b>				
VISION 2008			-4F17	
VISION 2008			-4F22	
VISION 2008			-4F44	
VISION 2008			-2F66	
<b>Option cable length:</b>				
1 m (standard)				-1
2 m				-2
3 m				-3
<b>Examples:</b>				
VISION 2008 2F66 fiberglass G3/8" + DIN connector	66122	-163	-2F66	
VISION 2008 4F22 fiberglass hose nipple 1m cable	56139	-165	-4F22	-1

## ORDERING MATRIX - VISION 2000 IN BRASS

Select process and electrical connection	Code			
<b>Mechanical connector:</b>				
G 3/8"	47000			
NPT 3/8"	47001			
<b>Electrical connection:</b>				
DIN connector		-163		
Cable – select cable length, see option		-165		
<b>Turbine model:</b>				
VISION 2008			-4F22	
VISION 2008			-2F66	
<b>Option cable length:</b>				
1 m (standard)				-1
2 m				-2
3 m				-3
<b>Examples:</b>				
VISION 2008 2F66 Brass G3/8" + DIN connector	47000	-163	-2F66	
VISION 2008 4F22 Brass G3/8" + 1m cable	47000	-165	-4F22	-1

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