

ETL 065-065-160 GGS AV11D201502 Bž]b_`rDA !`c\ bY`Aclrf°

Inline pump

Operating data

Requested flow rate		Actual flow rate	92.55 m ³ /h
Requested developed head		Actual developed head	34.96 m
Pumped medium	Water	Efficiency	79.2 %
	Clean water	MEI (Minimum Efficiency Index)	= 0.70
	Not containing chemical and mechanical substances which affect the materials	Power absorbed	10.71 kW
Ambient air temperature	20.0 °C	Pump speed of rotation	3000 rpm
Fluid temperature	92.0 °C	NPSH required	5.61 m
Fluid density	964 kg/m ³	Permissible operating pressure	16.00 bar.g
Fluid viscosity	0.32 mm ² /s	Discharge press.	4.30 bar.g
Suction pressure max.	1.00 bar.g	Min. allow. mass flow for continuous stable operation	6.31 kg/s
Mass flow rate	24.78 kg/s	Max. allow. mass flow Design	40.58 kg/s
Max. power on curve	13.30 kW		Single system 1 x 100 %
Min. allow. flow for continuous stable operation	23.58 m ³ /h		Tolerances to ISO 9906 Class 3B; below 10 kW acc. to paragraph 4.4.2
Shutoff head	44.44 m		

Design

Pump standard	Without	Shaft seal code	11
Caution: The overall length from suction to discharge can be different to the previous generation of Etaline.		Sealing plan	Single-acting mechanical seal with vented chamber (A-type casing cover, taper bore)
Design	Close-coupled in-line	A liquid free of solids is assumed	
Orientation	Vertical	Seal chamber design	Conical seal chamber (A-type cover)
Suction nominal dia.	DN 65	Contact guard	With
Suction nominal pressure	PN 16	Wear ring	Casing wear ring
Suction position	180° (down)	Impeller diameter	171.0 mm
Suction flange drilled according to standard	EN1092-2	Free passage size	11.6 mm
Discharge nominal dia.	DN 65	Direction of rotation from drive	Clockwise
Discharge nominal pressure	PN 16	Silicon free pump assembly	Yes
Discharge position	top (0°/360°)	Bearing bracket construction	Close-coupled
Discharge flange drilled according to standard	EN1092-2	Bearing bracket size	25
Shaft seal	Single acting mechanical seal	Bearing type	Anti-friction bearings
Manufacturer	KSB	Lubrication type	Grease
Type	1	Color	Vermilion (RAL 2002)
Material code	BQ1EGG-WA		

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Inline pump

Driver, accessories

Driver type	Electric motor	Insulation class	F to IEC 34-1
Drive standard mech.	IEC	Motor enclosure	IP55
Model (make)	KSB SuPremE®	Cos phi at 4/4 load	0.79
Type series motor manufacturer	SuPremE C2 (with mounting plate for PumpDrive 2, non removable)	Motor efficiency at 4/4 load	93.5 %
Drive supplied by	Standard motor supplied by KSB - mounted by KSB	Temperature sensor	3 PTC resistors
Motor const. type	V1	Terminal box position	0° same orientation
Motor size	160M	Motor winding	Viewed from the drive
Efficiency class	Efficiency class IE5 acc. IEC/TS 60034-30-2 (2016) – free of magnets. The efficiency of the motor for a quadratic torque-speed characteristic is > 95% of the nominal efficiency even at 25% of the nominal power.	Connection mode	230 / 400 V
Motor speed	3000 rpm	Motor cooling method	Star
Frequency	100 Hz	Motor material	Surface cooling
Rated voltage	400 V	Motor noise pressure level	Aluminium
Rated power P2	15.00 kW	Driver colour	71 dBa
Available reserve	39.99 %	Designed for operation with frequency inverter	Same as the pump
Rated current	32.0 A		Yes

Materials G

Volute casing (102)	Grey cast iron EN-GJL-250/A48CL35B	Casing wear ring (502.1)	Grey cast iron GG/CAST IRON
Casing cover (161)	Grey cast iron EN-GJL-250/A48CL35B	Casing wear ring (502.2)	Grey cast iron GG/CAST IRON
Shaft (210)	Tempered steel C45+N	Shaft sleeve (523)	CrNiMo steel
Impeller (230)	Grey cast iron EN-GJL-250/A48CL35B	Stud (902)	Steel 8.8
Motor stool (341)	Grey cast iron EN-GJL-250/A48CL35B	Impeller nut (922)	Steel 8
Flat gasket (400)	DPAF seal plate asbestos free	Key (940)	Steel C45+C / A311 GR 1045 CLASS A
Joint ring (411)	Steel ST		

FOOT 85X 50X 60

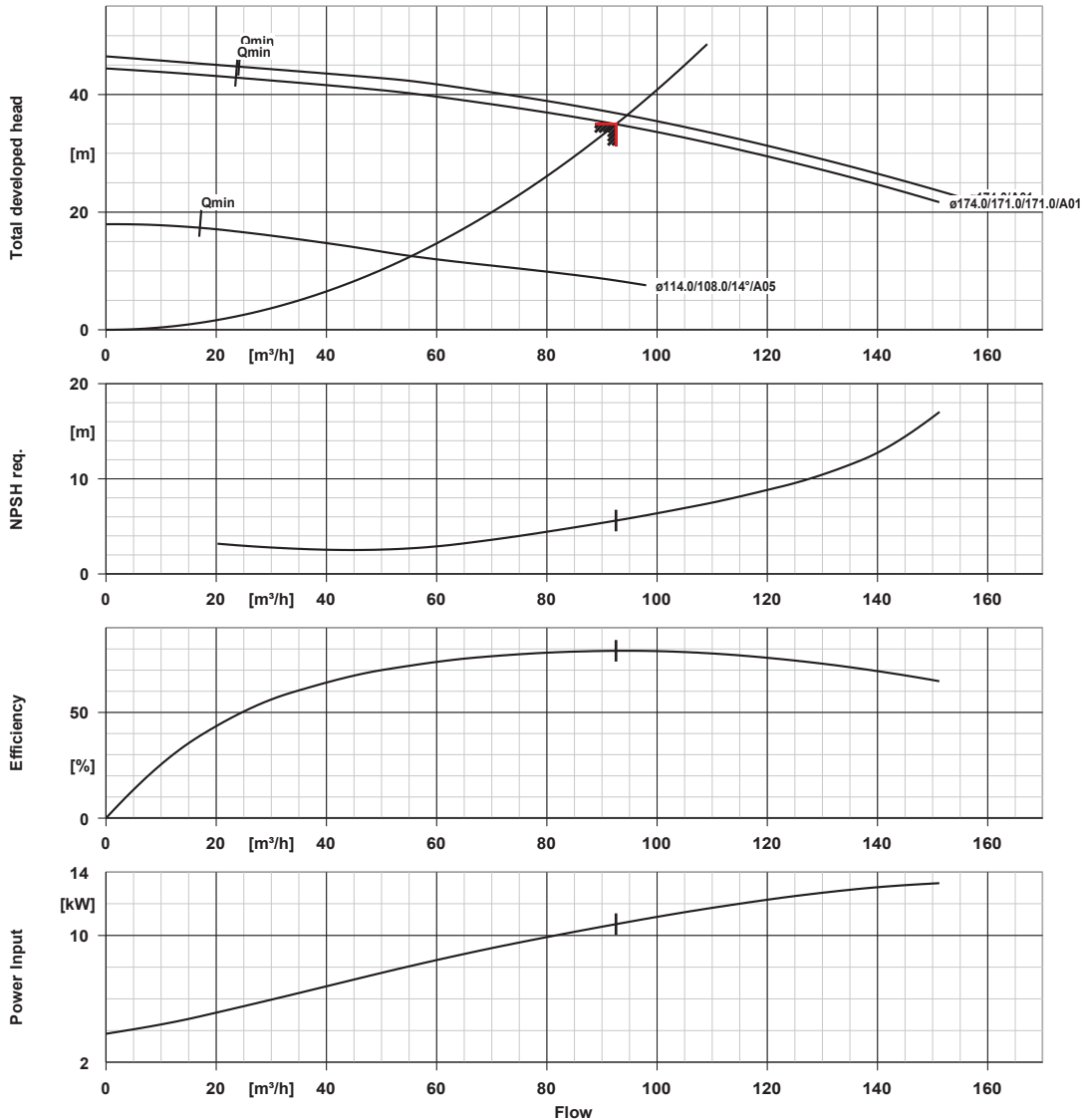
3 pump feet with bolts for vertical installation
 Pump foot for vertical installation
 Etaline(Z) 32-160/ up to 100-160/

Material no.: 47077960

Pump foot, not for Etaline SY
 Weight : 2,0 kg

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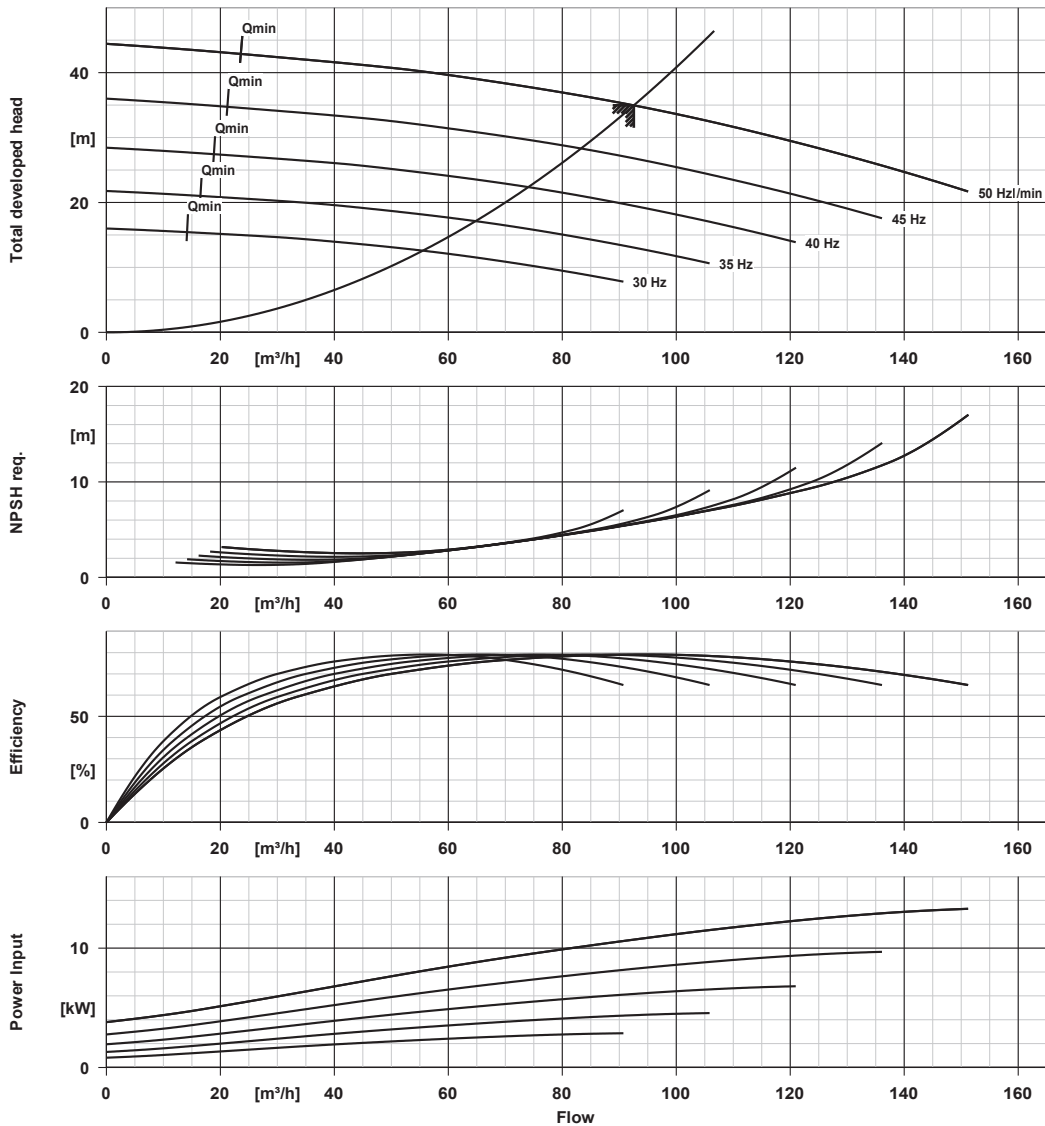


Curve data

Speed of rotation	3000 rpm	Efficiency	79.2 %
Fluid density	964 kg/m ³	MEI (Minimum Efficiency Index)	= 0.70
Viscosity	0.32 mm ² /s	Power absorbed	10.71 kW
Flow rate	92.55 m ³ /h	NPSH required	5.61 m
Requested flow rate	92.60 m ³ /h	Curve number	K1159.452/31
Total developed head	34.96 m	Effective impeller diameter	171.0 mm
Requested developed head	35.00 m	Acceptance standard	Tolerances to ISO 9906 Class 3B; below 10 kW acc. to paragraph 4.4.2

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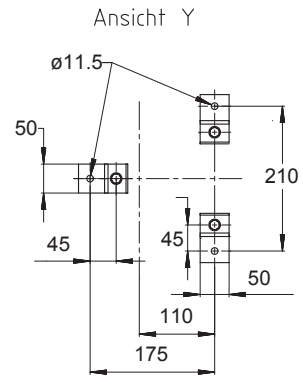
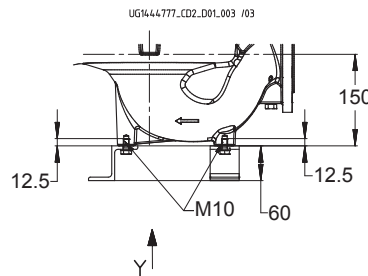
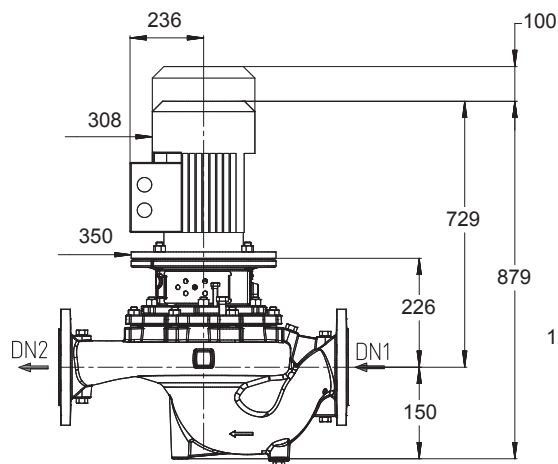
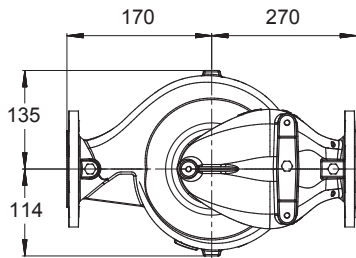
Inline pump



Curve data

Fluid density	964 kg/m ³	Total developed head	34.96 m
Viscosity	0.32 mm ² /s	Requested developed head	35.00 m
Flow rate	92.55 m ³ /h	MEI (Minimum Efficiency Index)	= 0.70
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 Inline pump



Drawing is not to scale

Dimensions in mm

Motor

Motor manufacturer	KSB
Motor size	160M
Motor power	15.00 kW
Number of poles	2
Speed of rotation	3000 rpm
Position of terminal box	0° same orientation Viewed from the drive

Connections

Suction nominal size DN1	DN 65 / EN1092-2
Discharge nominal size DN2	DN 65 / EN1092-2
Nominal pressure suct.	PN 16
Rated pressure disch.	PN 16

Weight net

Pump	27 kg
Motor	82 kg
Other accessories	2 kg
Total	111 kg

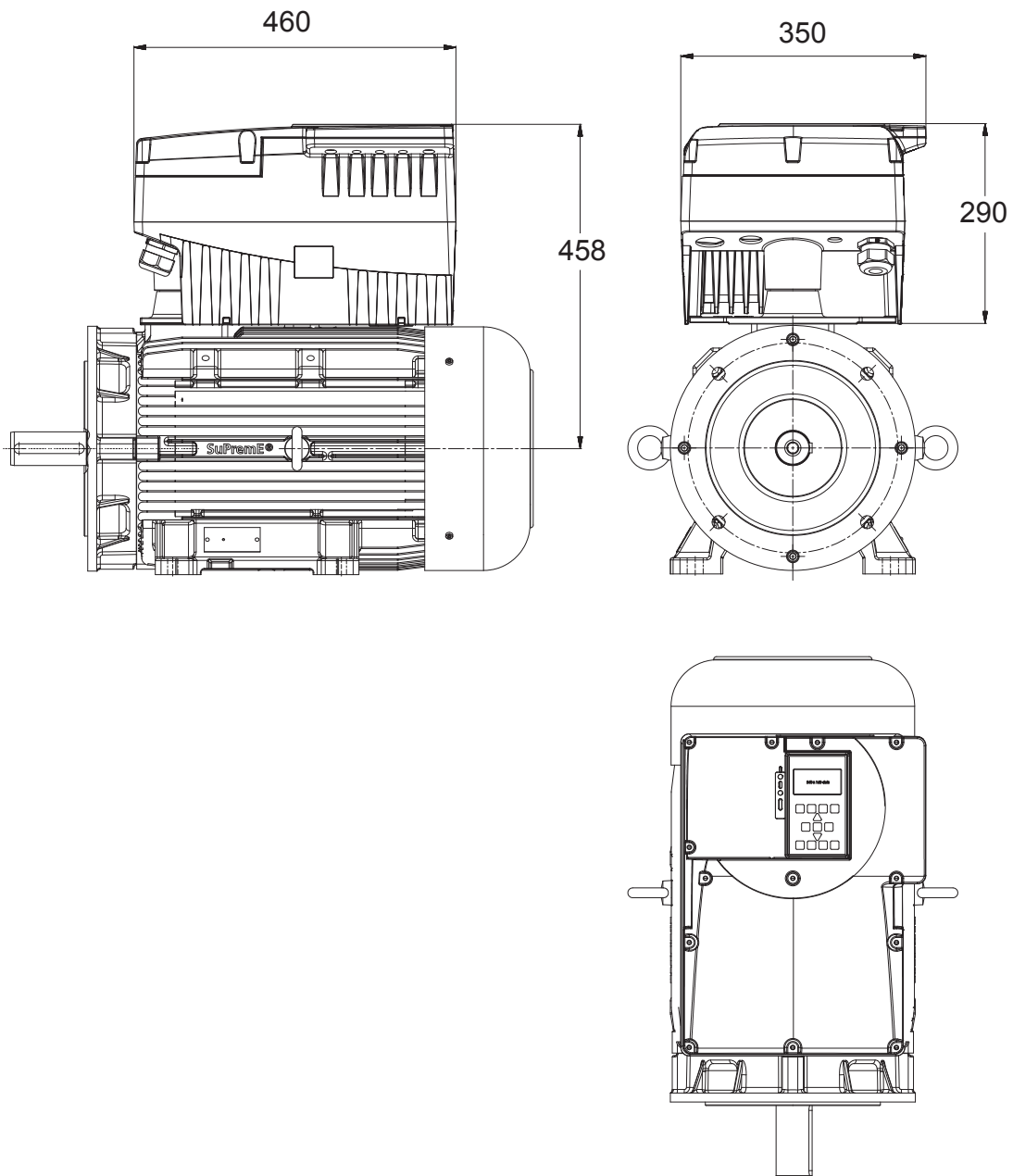
Connect pipes without stress or strain!

For auxiliary connections see separate drawing.

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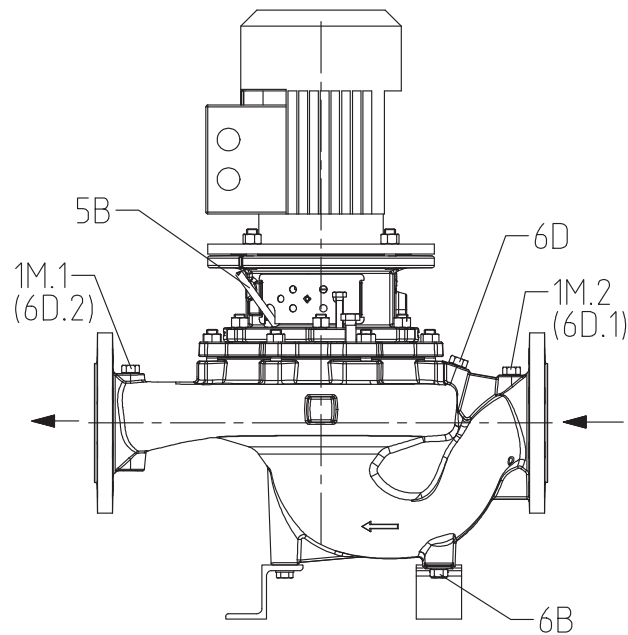
Supplementary drawing for PumpDrive

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Drawing is not to scale

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UG1444722_D01_003/ 02

Connections

Pump casing variant

1M.1 Pressure gauge connection

1M.2 Pressure gauge connection

6B Pumped liquid drain

6D Pumped medium - filling / venting

5B venting

G 1/4

G 1/4

G 1/4

G 1/4

G 1/4

XX46

Pressure sensor for PumpMeter fitted

Pressure sensor for PumpMeter fitted

Drilled and plugged.

Drilled and plugged.

Closed with venting plug

PumpMeter

Intelligent Pressure Transmitter PumpMeter - with on-site display of operating point

General description:

PumpMeter is an intelligent pressure transmitter with on-site display of measurement values and operating data of the pump. It comes factory-provided completely assembled and parameterised for your individual pump, to be connected via M12 connector and immediately ready to operate. PumpMeter records the pumps load profile during operation in order to – if applicable – provide information on the potential for energy savings or increased availability.

On-site display unit:

Backlit display unit for on-site display of measurement values and operating data of pump with intuitive and internationally comprehensible icons, rotatable in steps of 90°.

Display values:

suction pressure, pressure at inlet of pump in bar, gauge pressure
 discharge pressure, pressure at outlet of pump in bar, gauge pressure
 differential pressure between in- and outlet of pump in bar
 qualitative indication of operating point

Connection of display unit via connector (M12 x 1, 5-pin for power supply and utilization of communication interface.
 Making alternatively available:
 measurement value of discharge pressure via analogue signal 4 ... 20 mA
 calculated value of differential pressure via analogue signal 4 ... 20 mA
 all display values via serial interface RS 485 (Modbus RTU).
 Service interface RS232 for parameterisation.
 Factory provided parameterisation for individual pump.

Sensors:

Two gauge pressure transmitters, one each factory provided on both, inlet and discharge side of pump. Connected to display unit via connector.

Accuracy of measurement (sum of errors; relating to measurement range):

±1% for fluid temperature -10 ... 100 °C

±2.5% for fluid temperature -30 ... -10 °C and 100 ... 140 °C

Material of measuring cell: stainless steel (no internal gasket)

Available measurement ranges:

-1 ...3 bar (gauge pressure)

-1 ...10 bar (gauge pressure)

Ambient conditions:

Type of protection: IP 65

Ambient temperature:

-30°C ... 80°C (during transport, storage)

-10°C ... 60°C (operation)

Fluid temperature: -30°C ... 140°C

Scuff resistance:

Ultraviolet resistance (outdoor installation)

Resistance to most cleaning agents

Resistance to oil mist

Silicone free:

No detrimental to paint adhesion

Electric data:

Power supply:

24V DC ± 10%, min. 140 mA

Interfaces, alternatively utilisable:

4 ... 20 mA, 3-conductor (discharge pressure or differential pressure)

RS485, Modbus RTU (Slave)

Service interface: RS232

EMC:

EN 61326 (Immunity: industrial environment, Emissions:

applicable in home and building environment)