

Capsule Gauge for Low Pressure

Bayonet Ring Case Stainless Steel

with e-Gauge®

KPCh
KPChG

Application

e-Gauge® is a revolutionary "Worldwide Patent Pending" sensor accessory for analogue dial instruments such as pressure gauges and thermometers.

By use of the latest absolute encoding inductance technique, e-Gauge® converts almost every gauge or thermometer into a switch and transmitter.

The e-Gauge® is a non-contact device and converts a "normal" indicating gauge NCS 100/160 with 100 mm stainless steel bayonet ring DIN case into a multifunctional instrument with 2 digital limit switches and an analogue output signal of 4 -20 mA.

New measuring principle

- non-contact device
- low moment of inertia, only a slight increased weight of the pointer by the electronic transponder
- no mechanical drag as in existing limit switches

Robustness and reliability

- no mechanical components and therefore no mechanical wear in the e-Gauge®
- tamper proof switch points - factory set

Technical Data e-Gauge®

Output signal

4...20 mA (3 wire)

Nominal rating

8...28 VDC, max. 50 mA, reverse polarity protection

Load impedance [Ω]

(UB-8 V) / 0.02 A

Accuracy of the output signal

± 1.0 % of full scale value

Repeatability

$< \pm 0.2$ % of full scale value

Resolution

12 bit

Temperature ranges for e-Gauge with pressure gauge

Storing temperature: -40 °C...+70 °C (-40 °F...+158 °F)
-20 °C...+70 °C (-4 °F...+158 °F)
for glycerine filling

Ambient temperature: -30 °C...+60 °C (-22 °F...+140 °F)
-20 °C...+60 °C (-4 °F...+140 °F)
for glycerine filling

Temperature influence

0.1% of full scale value / 10K
in design temperature range: 0...50 °C (32...122°F)

Switching outputs

2 NPN-outputs (Open Collector), short-circuit proof

Switching function

Opening or closing circuit
Please quote in order



Limit values

coloured marks at the limit values on the dial

breaking contact: red

making contact: green

Please quote in order

Both limit values of the e-Gauge® can be set at the same point.

Switching hysteresis

1% of span

Switching capacity

max. 28 VDC, max. 50 mA

Response time

0.1s default

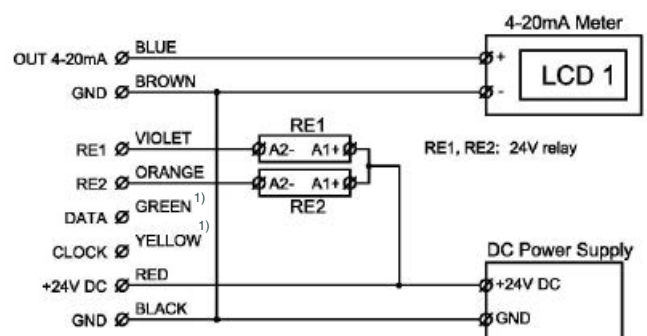
Electrical connection

1.5 m cable, not insulated wire ends, 8xAWG24

EMC

EN 61326:2006

Electrical Connection



¹⁾ green / yellow (DATA & CLOCK) do not connect - factory use only.

See page 3 for technical details of the pressure gauge



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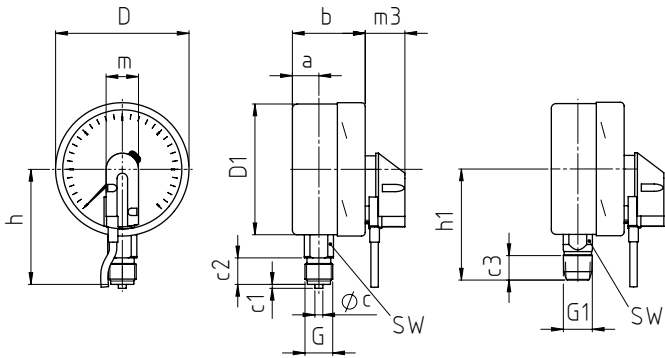
09/12

Case Configurations, Code Letters, Dimensional Data and Weights, Blow-out Device

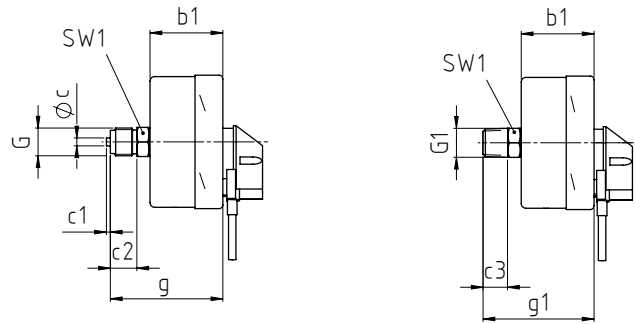
Bottom connection Centre back connection

no mounting device

(no additional code letter)

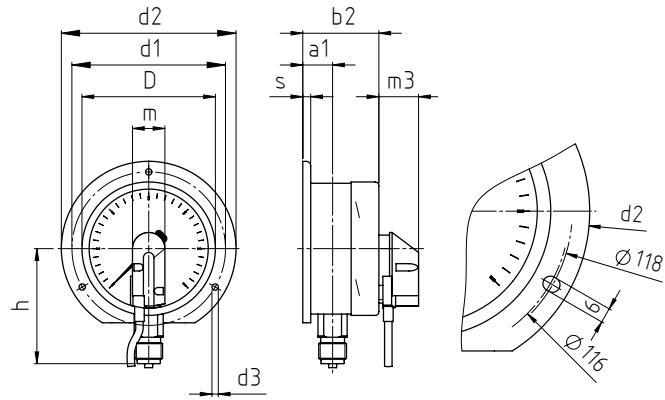


code letters: **rm**



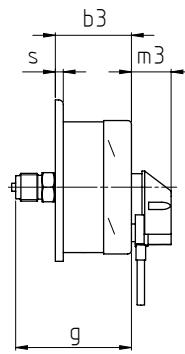
with back flange for surface mounting

code letters: **Rh**



back flange for surface mounting
optionally available with slotted
holes according to EN 837-3

code letters: **rmRh**



(available upon request, but according
to EN 837-3 not recommended)

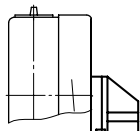
Dimensional data (mm / inches) and weights (kg / lb)

NCS	a	a1	b	b1	b2	b3	c	c1	c2	c3	D	D1	d1	d2	d3	G	G1	g	g1	h ^{±1}	h1 ^{±1}
100 4"	20 .79	23 .91	55 2.17	55 2.17	59 2.32	59 2.32	6 .24	3 .12	20 .79	19 .75	101 3.98	99 3.9	116 4.57	132 5.2	4.8 .19	G ½ B (½" BSP) M 20 x 1.5	½" NPT	85	84	87	84
160 6"	15 .59	18 .71	51 2.17	51 2.01	54 2.13	54 2.13	6 .24	3 .12	20 .79	19 .75	161 6.34	159 6.26	178 7.01	196 7.72	5.8 .23	G ½ B (½" BSP) M 20 x 1.5	½" NPT	81	80	115	114

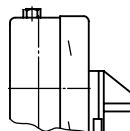
m	m3	s	SW	approx. weight	
				KPCh	KPChG
25	30	6	22	0.60	1.00
.98	1.18	.24	.87	1.32	2.20
25	30	6	22	0.90	1.80
.98	1.18	.24	.87	1.98	3.97

Blow-out device

Model KPChG 100
Blow-out plug19



Model KPChG 160
Blow-out device 5



Standard Versions Capsule Gauge for Low Pressure

Standard Versions Capsule Gauge for Low Pressure

Information on general and metrological features (load limits, temperature limitations) and standard pressure ranges / scale divisions of capsule gauge models KPCh 100/160 and KPChG 100/160 can be found in model overview 6000. Detailed descriptions can be found on data sheet 6201.

Technical Data Capsule Gauge for Low Pressure

Accuracy (EN 837-3)

Class 1.6

Reference Temperature

+ 20°C (68 °F)

Case

Bayonet ring, 1.4301 (304 stainless steel)

If the operating temperatures of the measuring system (measuring unit and movement) deviate from the reference temperature, additional deviations of the indication can occur. According to EN 837-3 these can be up to 0.6 % of the span per 10 K.

Case Protection Type (EN 60 529 / IEC 529)

IP 54

Blow-out Device

Model KPChG 100	Blow-out plug Ventilation for internal pressure compensation
Model KPChG 160	Blow-out device

Case Filling

for model KPChG: Glycerine

Nominal Case Size

100 (mm) (4"), 160 (mm) (6")

Wetted Parts

Type -1: Connection:	brass
Diaphragm capsule:	CuBe-alloy
O-ring sealing:	NBR
Type -3: Connection:	1.4571 (316 stainless steel)
Diaphragm capsule:	1.4571 (316 stainless steel)
O-ring sealing:	FPM

Case Configuration

Connection: screwed
Position of the connection: bottom connection,
optional: centre back connection (**rm**)
Mounting device: without, optional back flange for
surface mounting (**Rh**),
see page 2

Pressure Ranges (EN 837-3)

0-100 mbar (0- 400 "WC) to 0-600 mbar (0- 250 "WC)

Process Connection

G ½ B (½" BSP)

Window

Polycarbonate (PC)

Movement

Stainless steel for type -3
Brass / German silver for type -1

Dial

Aluminum, black figures, white background

Pointer

Aluminum, black

Options

see page 4

Accessory

see catalogue heading 11

Options

Options: e-Gauge®	
marking of the switch points by coloured clips at the bayonet ring	
accuracy of the output signal $\pm 0.5\%$ of full scale value	
non linear scales, e. g.: flow measurement	
output signal 20...4 mA	
response time in 0.01s steps, from 0.01s to 20s	
switching hysteresis deviating 1%, in 0.1% steps, from 0 to 25% of full scale value	
deactivation of the switch points	
programming provided by the customer	
e-Gauge calibrator, software CD and USB-cable	upon request
for connection to the PC, preferably laptop (provided by the customer)	
voltage source 24 VDC (provided by the customer)	

(order at the moment still as cleartext)

Options: Pressure Gauge	
other process connections upon request	
other pressure ranges and / or special scales, e. g. double scale bar/psi, coloured fields or areas, dial inscriptions, negative scales etc.	
special adjustment	
blow-out device $\varnothing 1"$ (25mm) in the back of the case	
blow-out plug 24 (reclosable)	
case ventilation no. 22 for outdoor installation	
case polished	
bayonet ring polished	
wetted parts, free of grease and oil for type -3 upon request	
oxygen version for type -3 without case filling upon request	
silicone-free version	
position of the connection radial at 3:00, 9:00, 12:00 (others upon request) or position of connection other than vertical installation (90°) for types without case filling	
restrictor screw in pressure inlet port	orifice $\varnothing 0.3$ mm (0.01")
material: as process connection, brass or stainless steel	
measuring point marking	stainless steel-plate 12 mm x 55 mm (0.47" x 2.17"), wire mounting or sticker on case coverage
GOST-version for Russia, Ukraine, Kazakhstan	

Ordering Information (model construction)			
Please quote in your order:	basic model pressure gauge	e.g. KPChG 160-1, Rh, 0-160 mbar, G ½ B	
		switching function	e.g. eG 12
		limit values	1. limit value 45 mbar 2. limit value 105 mbar
	pressure gauge with e-gauge®	e.g. KPChG 160-1, Rh, 0-160 mbar G ½ B, eG 12	
If you desire options, please quote these in the cleartext			

Changes, replacement of materials and printing errors excepted