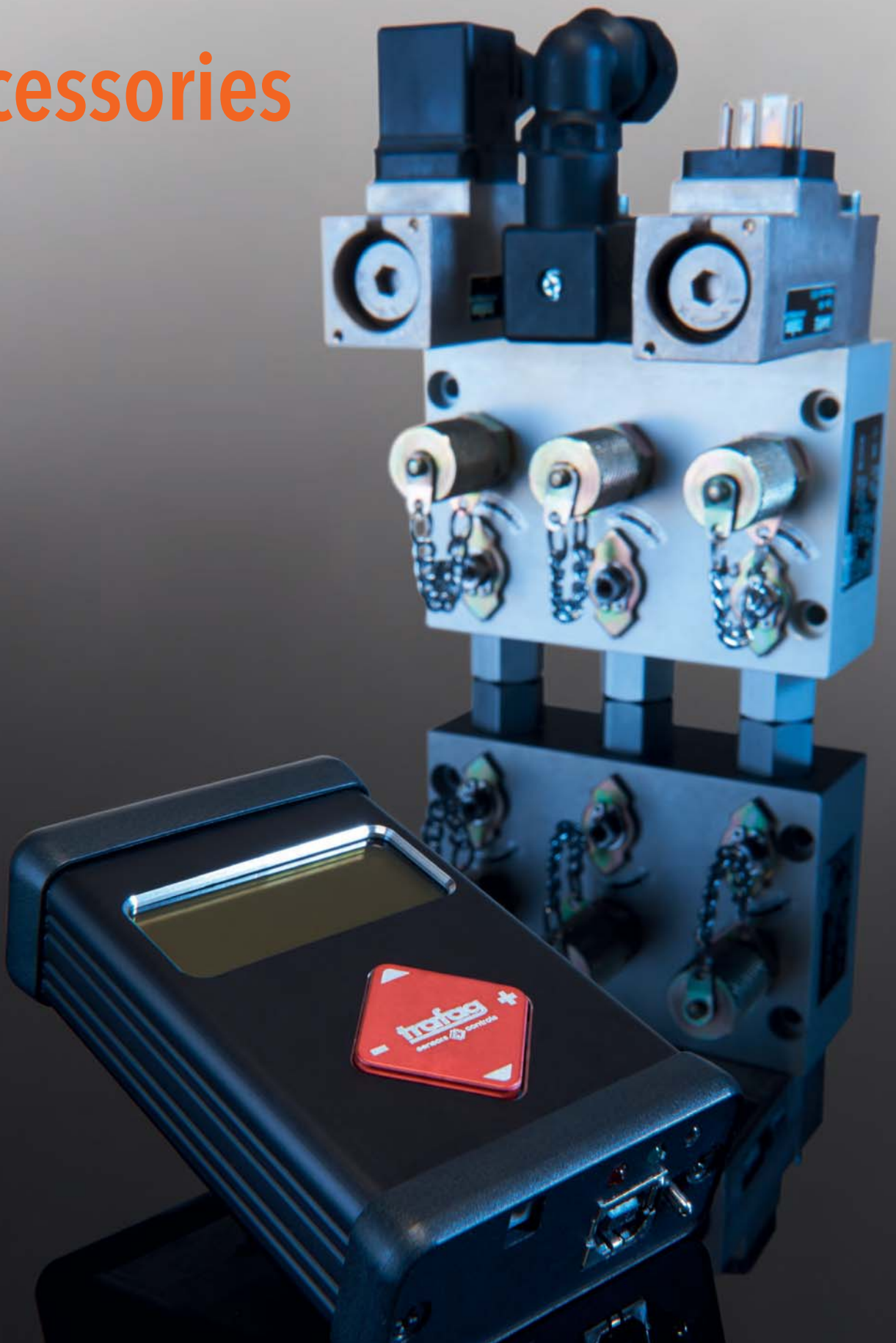
Accessories



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Accessories

Trafag offers a wide range of original accessories which are ideally matched to our products. These include devices for monitoring or configuring transmitters such as hand pumps with precision pressure gauge or the Sensor Communicator, a handheld device which provides direct access to the calibration values of the transmitter in the Trafag ASIC. Trafag also offers a wide range of accessories meet specific application requirements and also make installation easier. They include diagnostic valve manifolds, snubbers and pressure peak damping elements for measuring pressure, or protective pipes for thermostats.

Accessories for pressure measurement instruments

- Sensor Communicator
- CAN2USB Tool
- Diagnostic valve block
- Hand pump with precision manometer
- Zenerbarrier
- Venting box
- Cable hanger
- Pressure peak damping elements
- Snubbers
- Adapters for different pressure connections
- Stop valves

Accessories for thermostats

- Protection tubes for direct mounting and remote sensors
- Duct mounting bracket
- Capillary tube holder
- Mounting brackets
- Screwed cable glands, ship approved, for retrofit

SC

Sensor Communicator

Features

- Read out of sensor data
- Adjustment of set point or zero point and span
- Real time pressure measuring
- Software update and battery charge with USB-interface

Technische Daten

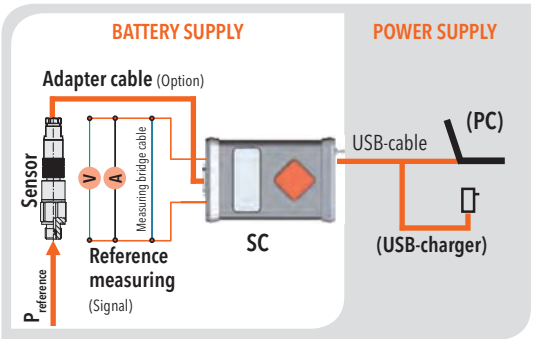
- Identification of device data: Model, signal output, type plate, manufacturing date
- Setting of switchpoint (8320 EPN-S)
- CANopen: Setting of Node-ID and baudrate
- Reset to factory settings

Instruction H73699 en H73698 de

Compatible devices and adapter cables

		Output signal		
Model	**Connector**	4 ... 20 mA	0 ... 10 VDC 0 ... 5 VDC 1 ... 6 VDC	0.5 ... 4.5 VDC ratiometric
NAT (8251) NAH (8253) NAE (8255) NSL (8257)	**Industrial standard** 82XX.XXXX.01.XX..	**SC01A**	**SC01V**	**SC01R**
	M12, 4-pole 82XX.XXXX.32.XX..	**SC32A**	**SC32V**	**SC32R**
	M12, 5-pole 82XX.XXXX.35.XX..	**SC35A**	**SC35V**	**SC35R**
		Output signal		
Model	**Connector**	4 ... 20 mA	CANopen	Switching output
CMP (8270)	**M12, 5**-pole 82XX.XXXX.**35**.XX..		**SC35CAN**	
EPN-S (8320)	**DIN43650** 8320.XXXX.**40**.XX..			**SC04SW**
EPR (8293) EPN (8298) NPN (8264)	**DIN43650** 82XX.XXXX.**04**.XX..	**SC04A**		
	DIN43650 (invers) 82XX.XXXX.**04**.XX.**92**..	**SC04A92**		

Connection scheme



Content of delivery:

- 1 pce SC incl. batteries
- 1 pce USB-cable
- 1 pce Measuring bridge cable
- Option: Adapter cable (see table)

CAN2USB

CANopen Configuration Tool

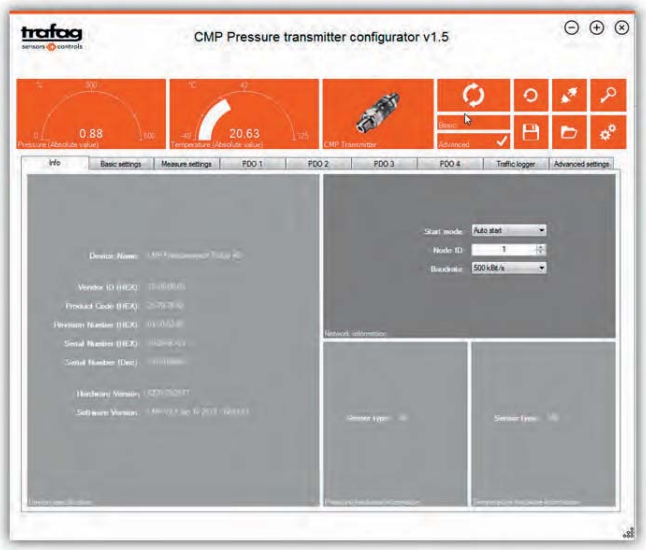
Features

- Configuration of Trafags pressure transmitter CMP 8270 via USB
- Easy to use visual user interface
- Integrated datalogger
- Complete set availabe at Trafag AG
- System requirements: Windows 7, Windows 8, Windows 10, USB 2.0 or higher

Technical Data

Configuration of CANopen devices is for non-experts a very difficult task. Common software is geared towards experts with a lot of background knowledge and routine in programming such devices. Neither the software user interface nor hardware like connectors and adapter cards are a comfortable solution for occasional users. The CMP CANopen Configuration tool, developed and produced for Trafag CMP 8270 CANopen pressure transmitter, is the perfect solution for this: Easy-to-use software interface and a USB-to-CANopen dongle. It allows configuration of all CANopen parameters and access to the complete object dictionary. Live display of the actual measurements of pressure and temperature and an integrated logger with export function offers easy monitoring of the CANopen bus communication.

Instruction H73617



Content of delivery:

- CAN2USB adapter
- Cable from adapter to USB
- T-connector M12 F-F-M
- Terminator 120 Ω
- USB Memory stick with software and manual for CAN2USB and CMP 8270

Recommended accessory (not included):

- CMP0.6M: CANopen Pressure Transmitter 8270 CMP with pressure range 0 ... 0.6 bar
- C29161: Pressure applicator

DVB

Diagnostic Valve Block

Features

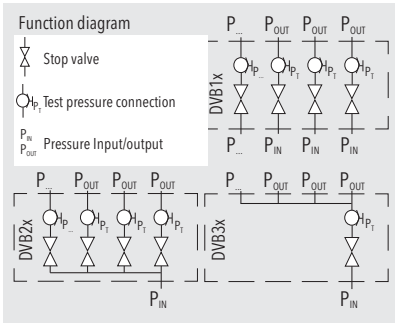
- Function tests during operation (no interruption necessary) with stop valve and test connection

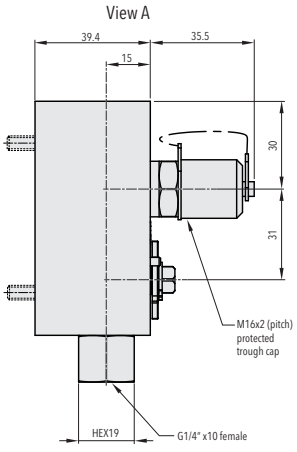
Technical Data	
Pressure	-0.8 ... 100 bar
Ambient temperature	-20°C ... +120°C

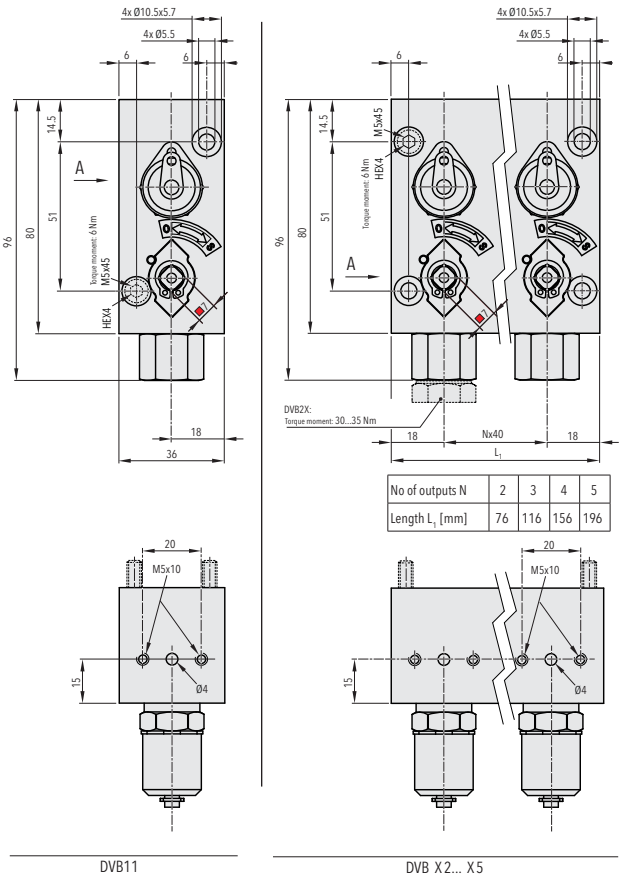
Data sheet Instruction H72361 H73361

Standard products (extra short lead time)

Product No		Material	Product No		Material
DVB11	1 P-in, 1 test connection, 1 P-out	Al, PEEK, FPM	DVB24	1 P-in, 4 test connection, 4 P-out	Al, PEEK, FPM
DVB12	2 P-in, 2 test connection, 2 P-out	Al, PEEK, FPM	DVB25	1 P-in, 5 test connection, 5 P-out	Al, PEEK, FPM
DVB13	3 P-in, 3 test connection, 3 P-out	Al, PEEK, FPM	DVB32	1 P-in, 1 test connection, 2 P-out	Al, PEEK, FPM
DVB14	4 P-in, 4 test connection, 4 P-out	Al, PEEK, FPM	DVB33	1 P-in, 1 test connection, 3 P-out	Al, PEEK, FPM
DVB15	5 P-in, 5 test connection, 5 P-out	Al, PEEK, FPM	DVB34	1 P-in, 1 test connection, 4 P-out	Al, PEEK, FPM
DVB22	1 P-in, 2 test connection, 2 P-out	Al, PEEK, FPM	DVB35	1 P-in, 1 test connection, 5 P-out	Al, PEEK, FPM
DVB23	1 P-in, 3 test connection, 3 P-out	Al, PEEK, FPM			







THP...

Hand pump

Features

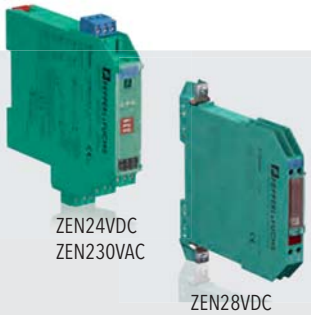
- For testing of pressure transmitters and pressure switches

Technical Data	
Connection	G1/4" female

Standard products (extra short lead time)		
Product No	**Range [bar]**	
THP30	-0.85 ... +25	
THP700	0 ... 700	Resolution 0.2 bar

ZEN...

Switch amplifier



Features

- II 1 G Ex ia IIC Ga
- II 1 D Ex ia IIIC Da
- I M1 Ex ia I Ma
- IP 20
- Output: Signal, relays

Technische Daten	
Ambient temperature	-20°C ... +60°C

The switch amplifier transfers digital signals from the hazardous area. Sensors per DIN EN 60947-5-6 (NAMUR) and mechanical contacts may be used as alarms.The control circuit is monitored for lead breakage (LB).

Standard products (extra short lead time)		
Product No	**Connection**	
ZEN24VDC	20 … 30 VDC, 20 … 23 mA	U_0 = 10.5 V, I_0 = 13 mA, P_0 = 34 mW
ZEN230VAC	207 … 253 VAC, 45 … 65 Hz	U_0 = 10.6 V, I_0 = 19.1 mA, P_0 = 51 mW
ZEN28VDC	Max. 28 VDC	U_0 = 28 V, I_0 = 93 mA, P_0 = 650 mW

HIP...

Venting box

Features

- For all Trafag level transmitters

Technical Data

Vented plastic housing with wire terminals to connect a submersible pressure transmitter.

Standard products (extra short lead time)		
Product No		**Material**
HIP67	Box 130 x 94 x 57 mm, fixing 4 x Ø 5 mm, hole pattern 115 x 79 mm	Polystyrol, not suitable for outdoor applications

AKL...

Cable hanger

Features

- For all Trafag level transmitters

Technical Data

Cable hanger to clamp cable with diameters of 5.5 ... 9.5 mm

Standard products (extra short lead time)			
Product No		**Connection**	**Material**
AKL5.5-9.5	174 x 45 x 32 mm	For cable diameters 5.5 ... 9 mm	1.4301, PA fibreglass reinforced

A../D..

Adapters with manometer pressure ports

A1/A2
D1/D2

D4

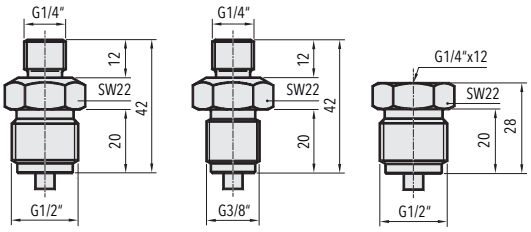
Features

- Pressure adapters with different thread combinations and materials for individual applications

Technical Data	
Material	1.4435 (AISI316L) / Brass
Connection	G1/4″m - G1/2″m, G1/4″m - G3/8″m, G1/4″f - G1/2″m

Data sheet H72258

Standard products (extra short lead time)		
Product No		**Material**
A1	G1/4″ male - G3/8″ male manometer	Brass
A2	G1/4″ male - G1/2″ male manometer	Brass
D1	G1/4″ male - G3/8″ male manometer	1.4435 (AISI316L)
D2	G1/4″ male - G1/2″ male manometer	1.4435 (AISI316L)
D4	G1/4″ female - G1/2″ male manometer	1.4435 (AISI316L)



A2/D2 A1/D1 D4

K.../F...

Snubber


K3/K4/K5
F3/F4/F5


K1/K2

Features

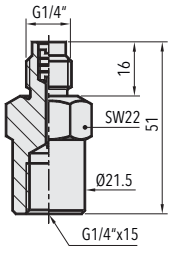
- Integrated in an adapter
- K1/K2: Pressure peak damping element integrated in an adapter

Technical Data	
Material	1.4435/316L, brass
Connection	G1/4" male - female, G1/8" male - female

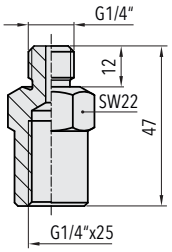
Data sheet H72258

Standard products (extra short lead time)

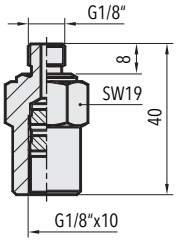
Product No		Connection	Material
F3	Snubber for heavy oil	G1/4" male - female	Brass
F4	Snubber for light oil	G1/4" male - female	Brass
F5	Snubber for water/air	G1/4" male - female	Brass
K1	Snubber for water/air/light oil	G1/4" male - female	1.4435 (AISI316L)
K2	Snubber for water/air/light oil	G1/8" male - female	1.4435 (AISI316L)
K3	Snubber for heavy oil	G1/4" male - female	1.4435 (AISI316L)
K4	Snubber for light oil	G1/4" male - female	1.4435 (AISI316L)
K5	Snubber for water/air	G1/4" male - female	1.4435 (AISI316L)



K3/K4/K5
F3/F4/F5



K1



K2

V6/V7

Stop valve

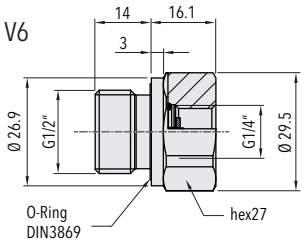
Features

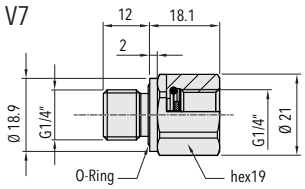
- Allows replacement of instruments without interruption of process (max. 40 bar)

Technical Data	
Material	1.4305 / FKM
Pressure	max. 600 bar
Media temperature	-25°C ... +125 °C

Data sheet H72258

Standard products (extra short lead time)		
Product No		**Connection**
V6	For water, air, light-crude, heavy oil	G1/2" male - G1/4" female
V7	For water, air, light-crude, heavy oil	G1/4" male - G1/4" female





DAMP...

Pressure peak damping element

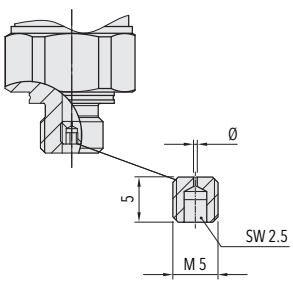
Features

- Retrofit kit with integrated M5 male thread
- Hole diameter 0.4 mm, 1.0 mm
- Set of 5 pcs.

Technical Data	
Material	1.4435 (AISI316L)

Data sheet H72258

Standard products (extra short lead time)		
Product No		**Material**
DAMP1.0	With 1.0 mm hole, for heavy oil	1.4435 (AISI316L)
DAMP0.4	With 0.4 mm hole, for water and light oil	1.4435 (AISI316L)



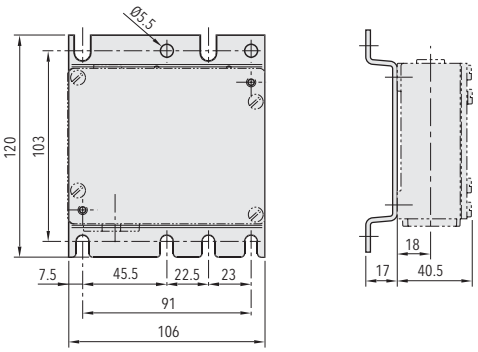
MB31

Mounting Plate

Features

- For pressure transmitters and pressure switches

Technical Data	
Material	Steel galvanised



Standard products (extra short lead time)		
Product No	**Suitable for type**	**Material**
MB31	N, ND, P, PS, PV, PD, PK, PVF, EXP, EXPK, EXPD	Steel galvanised

CG

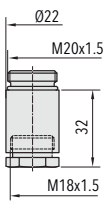
Screwed cable gland

Features

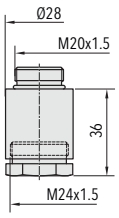
- DIN 8280 for shipbuilding
- Retrofit for pressure transmitters, pressure switches and thermostats

Technical Data	
Material	Brass
Connection	M18x1.5, M24x1.5
Cable	Ø 10.5 mm, 16.5 mm

Standard products (extra short lead time)		
Product No		**Material**
CG18	M18x1.5 for 8 ... 10.5 mm cable diameter	Brass
CG24	M24x1.5 for 14 ... 16.5 mm cable diameter	Brass



CG18



CG24

83../84..

Protection tubes for remote sensors

Features

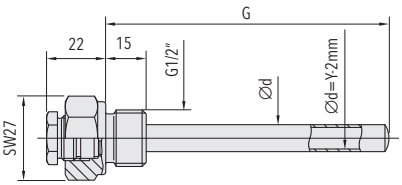
- For liquid media
- Pressure proof up to 25 bar (types 83xx)
- Pressure proof up to 40 bar (types 84xx)

Technical Data	
Material	Stainless steel 1.44435/316L, brass nickel plated
Media temperature	See table

Data sheet H72163

Standard products (extra short lead time)

Product No	Suitable for type	Material	Protection tube diameter [mm]	Protection tube length [mm]
83160110K	M, MS, M2S, L, I, IS, ISP	Brass nickel plated	10	110
83160150K	M, MS, M2S, L, I, IS, ISP, ISN	Brass nickel plated	10	150
83160200K	I, IS	Brass nickel plated	10	200
83160300K	M, MS, M2S, L, I, IS	Brass nickel plated	10	300
83160400K	M, MS, M2S, L, I, IS	Brass nickel plated	10	400
83170110	ISP, ISN	Brass nickel plated	12	110
83180150K	D ... R	Brass nickel plated	14	150
83190065	ISP, ISN	Brass nickel plated	15	65
84110110K	M, MS, M2S, L, I, IS, ISP	1.4435 (AISI316L)	10	110
84110150K	M, MS, M2S, L, I, IS, ISP, ISN	1.4435 (AISI316L)	10	150
84110200K	I, IS	1.4435 (AISI316L)	10	200
84110400K	M, MS, M2S, L, I, IS	1.4435 (AISI316L)	10	400
84120110	ISP, ISN	1.4435 (AISI316L)	12	110
84140065	ISP, ISN	1.4435 (AISI316L)	15	65



Operating temperature

Length G [mm]	Range T [°C]	Sensor-Ø [mm]
200	-30 ... +40, 0 ... +35, +10 ... +80	7
150	+5 ... +95, +20 ... +150, +20 ... +110	7
110	+20 ... +230, +70 ... +350	7
180	-30 ... +40, 0 ... +35	5.5/11
150	+5 ... +95, +20 ... +150	5.5/11
110	+20 ... +230, +70 ... +350	9
65	+5 ... +95, +20 ... +150, +20 ... +110	12

121.../141...

Protection tubes for direct mounting

Features

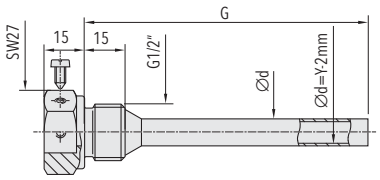
- For thermostats type MST and ISPT/ISNT
- Lateral clamp mounting (type MST)
- Pressure proof up to 40 bar (types 141x)
- With captive nut (types 141x)

Technical Data	
Material	Stainless steel 1.44435/316L, brass nickel plated
Media temperature	See table

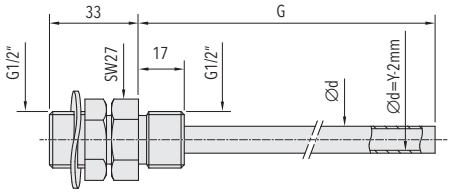
Data sheet H72163

Standard products (extra short lead time)

Product No	Suitable for type	Material	Protection tube diameter [mm]	Protection tube length [mm]
12110150K	MST ... 15	1.4435 (AISI316L)	10	150
12110400K	MST ... 40	1.4435 (AISI316L)	10	400
12160150K	MST ... 15	Brass nickel plated	10	150
12160400K	MST ... 40	Brass nickel plated	10	400
14110150K	ISNT ... 150	1.4435 (AISI316L)	10	150
14120110K	ISNT ... 110	1.4435 (AISI316L)	12	110
14140065K	ISP/ISNT ... 65	1.4435 (AISI316L)	15	65



121X..



141X..

Operating temperature

Length G [mm]	Range T [°C]	Sensor-Ø [mm]
200	-30 ... +40, 0 ... +35, +10 ... +80	7
150	+5 ... +95, +20 ... +150, +20 ... +110	7
110	+20 ... +230, +70 ... +350	7
180	-30 ... +40, 0 ... +35	5.5/11
150	+5 ... +95, +20 ... +150	5.5/11
110	+20 ... +230, +70 ... +350	9
65	+5 ... +95, +20 ... +150, +20 ... +110	12

W.../K...

Thermostat sensor duct holder

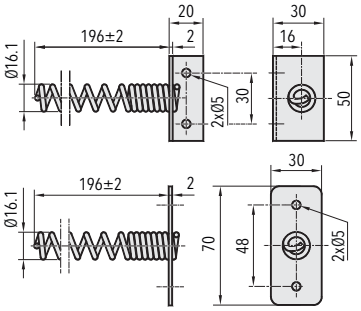
Features

- For HVAC
- For retrofitting of thermostats

Technical Data	
Material	Steel galvanised

Data sheet H72106

Standard products (extra short lead time)		
Product No	**Suitable for type**	**Material**
K200	L, LF, M, MS	Steel galvanised
W200	I, IS, M2, M2S	Steel galvanised



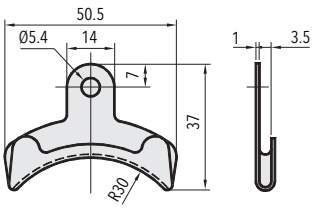
K80140

Capillary tube holder

Features

- For Froststats F/F...R

Technical Data	
Material	Steel galvanised



Standard products (extra short lead time)		
Product No	**Material**	
K80140	Steel galvanised	Package size 6 pcs.

Terminology for pressure measurement instruments

Relevant standards
DIN 16086, IEC 61298-2

Instrument types

Pressure sensors
Membranes with elements applied whose physical properties change when the membranes deform (strain gauges with changing resistance, for example).

Pressure transmitters
Transmitters for converting the pressure to be measured into a defined or standardised analogue and/or digital output signal.

Pressure transducers
Pressure sensors that have a process connection and electrical connection (e.g. connector) but do not convert pressure into a standardised electrical signal like a pressure transmitter.

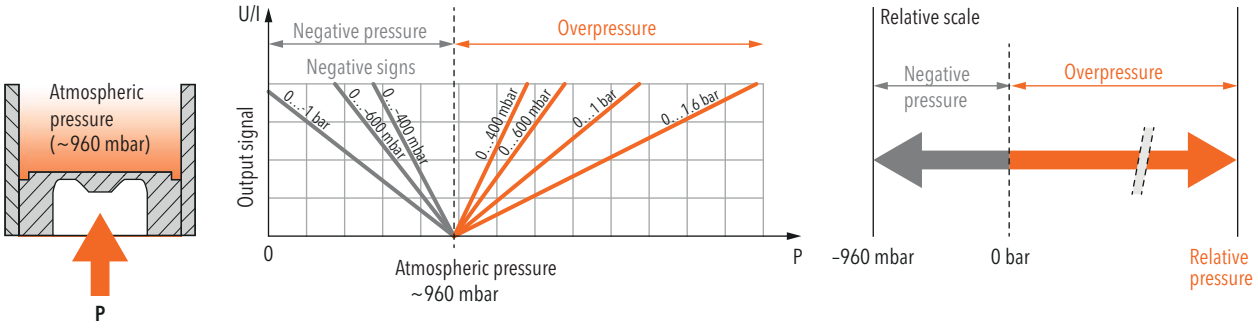
Types of pressure measurement

Differential pressure measurement
The measurement of differential pressure of two different pressures. The measuring instrument has two pressure connections.

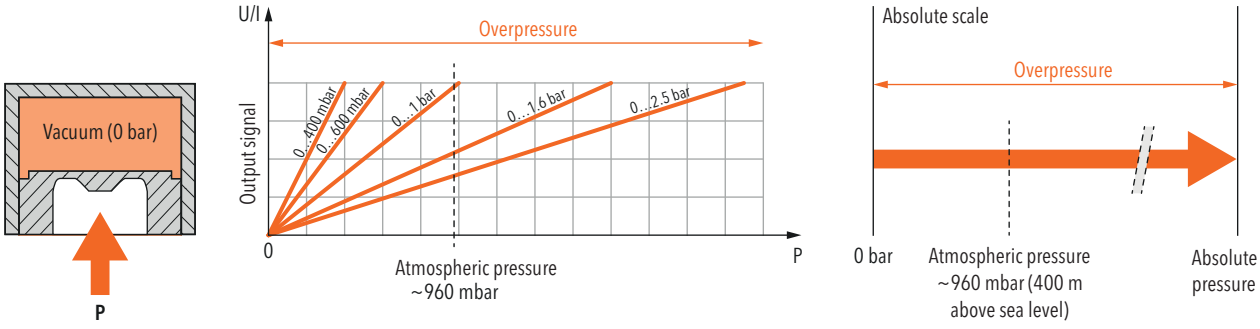
Absolute pressure measurement
The measuring result is always the deviation to the absolute zero (vacuum).
e.g. 4 mA = 0 bar (= vacuum); zero point (ZP): 0 bar

Relative pressure measurement DIN 16086: overpressure
The measuring result is always the deviation to the current, absolute atmospheric pressure.
e.g. 4 mA = 960 mbar (= atmospheric pressure); zero point (ZP): 0 bar

Relative pressure measurement



Absolute pressure measurement



Terminology for pressure measurement instruments

Main features

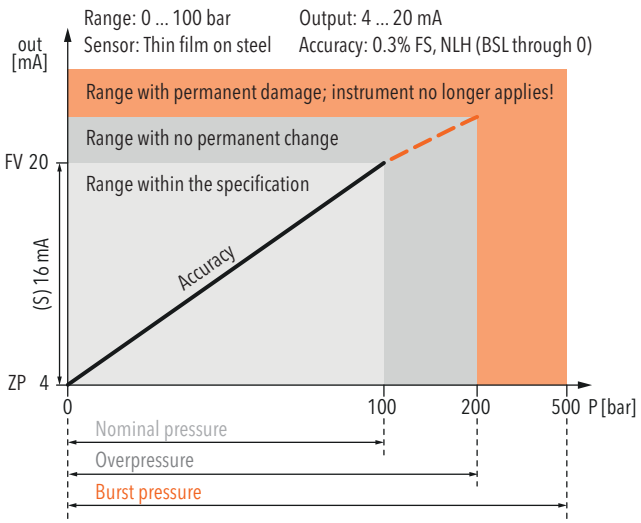
Nominal pressure measuring range
Range between the upper and lower limits of the size measured (operating pressure). The specified accuracy remains within this range.

Measuring span
Algebraic difference between the upper and lower limit values of a certain measuring range.

Overpressure Max. working pressure
Highest pressure specified by manufacturer for which the pressure transformer is designed at maximum temperature. The pressure transformer can be loaded up to this pressure without the guaranteed metrological properties having changed after going back into the measuring range. However, there is no longer a clear link between pressure and output signal in the range between nominal pressure and overpressure.

Burst pressure
Pressure value (static) at which the measuring instrument suffers permanent damage. The instrument can withstand pressures up to this value without bursting and will not leak any measuring medium.

Example



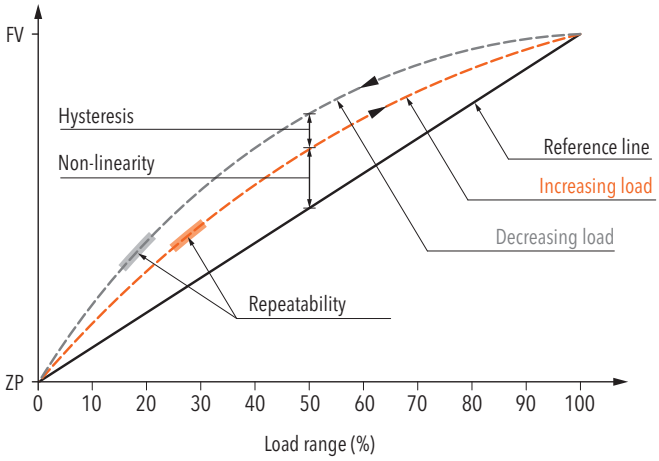
Accuracy

Typ. accuracy
(Typical) Mostly corresponds to the 1-sigma value of the normal distribution, i.e. approx. 68.3%. Generally, well over 75% of all Trafag instruments meet this typical measured value.

Max. accuracy
(maximum) 100% of all instruments meet this maximum measured value.

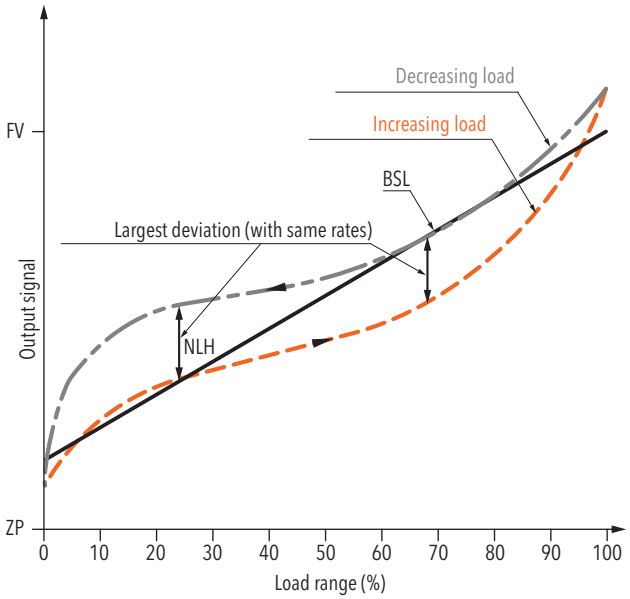
Non-linearity
The largest deviation from the effective characteristic line of an ideal reference line. The reference line can be defined as a limit point adjustment, a BSL or a BSL through 0.

Specifications: Non-linearity, Hysteresis



BSL Best Straight Line
The reference line according to the BSL or the minimum value adjustment is placed in such a way that the maximum positive and negative deviations are as small as possible.

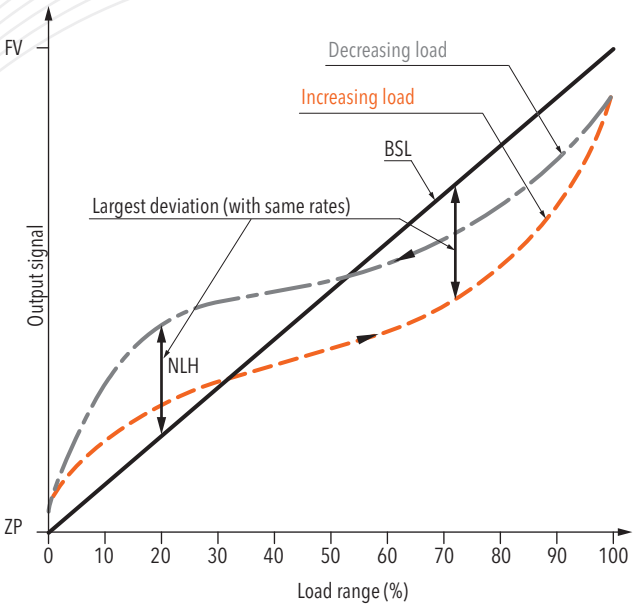
Specifications: Accuracy NLH (BSL)



Terminology for pressure measurement instruments

BSL through zero
As an additional requirement for the minimum value adjustment, the BSL through zero (also BSL/0) must go straight through zero or the origin.

Specifications: Accuracy NLH (BSL through zero)



Non-linearity according to limit point adjustment
The reference line runs through the origin and end point of the characteristic line. Non-linearity indicates the greatest deviations from this line.

Hysteresis
Property of an instrument for yielding different output values in relation to its input values, which are dependent on the effective direction in which the input values are created (acc. to IEC 61298-2).

Pressure hysteresis
The difference that occurs at the same pressure between measurements in the direction of increasing and then decreasing pressure.

Temperature hysteresis
Maximum change of the zero point and output span for the pressure signal after specified temperature cycle over the operating temperature range.

NLH non-linearity and hysteresis
Largest deviation from the ideal characteristic line (BSL, BSL/0 or limit point). In pressure measuring instruments, the non-linearity and pressure hysteresis are given together at a constant temperature.

Accuracy DIN 16086: Measurement deviation
The accuracy denoted in the standard DIN 16086 with measurement deviation (at 25°C reference temperature) includes all deviations as a result of non-linearity, hysteresis, non-repeatability, zero point (start of measuring range) errors and span (end of measuring range) errors. Zero point errors and span errors also include the measuring uncertainty of the configuration ensemble.

Repeatability DIN 16086: Non-repeatability
Deviation of the output signals with same input signals under identical (established) application conditions.

Temperature coefficient TC
Change of measured value for zero point and span as a result of changes in temperature.

Long-term stability Long-term drift
The change of accuracy due to aging under certain reference conditions during a certain period of time, typically 1 year.

TEB Total error band
Total error (root from sum of the square of the deviations) due to measurement deviations (accuracy) and temperature influence (temperature coefficient TC). The temperature influence is usually given in the information from Trafag across a range larger than that given in the standard (-10 ... +60 °C). Whilst DIN 16086 also continues to add to the long-term stability over a year, the information from Trafag is subject to ex-works conditions for obvious reasons.

Scale accuracy
For pressostats: Deviation arising from the manual switch point adjustment with the help of the display (scale).

Electrical Data

Output signal
Electrical signal that emits the value of the measurement size for further processing

Rise time Step response
The time it takes for an output signal after a severe pressure change to increase from 10% to 90% of its final value that results from the change in pressure.

Zero point ZP
Output signal in the pressureless state (P_{min}), e.g. 4 mA at 0 bar (P_{min}).

Terminology for pressure measurement instruments

Final value FV
Output value of the largest pressure value in the nominal pressure range (P_{max}), e.g. 20 mA at 100 bar (P_{max}).

Span S
Final value (FV) – zero point (ZP) = span (S)
e.g. span (S) = (FV) 20 mA - (ZP) 4 mA = 16 mA

Switching differential Pressostats
Range within which the micro-switch in pressostats switches on and off
Example:
X...X = adjustable value
X - X = non-adjustable value; runs proportional to the nominal pressure
X = fixed value

Limiter Pressostats
Pressostat with manual micro-switch reset.

Environmental conditions

Media temperature
Permissible temperature range of the measuring media.

Operating temperature Ambient temperature
Temperature range in which the measuring instrument adheres to its specifications. As the electronics in certain instruments are more sensitive to temperature than the sensor element, the maximum ambient temperature for the instrument is lower than the permissible media temperature.

Storage temperature
Temperature range in which the measuring instrument can be stored or transported without permanently changing the measuring characteristics.

Protection
Humidity and dust shield according to IP classes in accordance with EN 60529.

EMC Protection

EMC Electromagnetic compatibility
Instrument property for functioning in an environment with electromagnetic interference and for not unduly influencing this environment (to which other equipment also belongs).

Immission
Immunity to external electromagnetic disturbances.

Emission
Interference emission from electromagnetic disturbances.

Surge
Immunity to unipolar surge voltages that can occur due to surges as a result of switching operation and lighting.

Burst
Immunity to recurring, rapid, transient electrical disturbances.