



HU 400

Hammer Union Pressure Transmitter

special application
petrochemical industry / offshore
with HART®-communication

accuracy according to IEC 60770:
0.25 % FSO BFSL

Nominal pressure

from 0 ... 15 000 psi
others on request

Output signals

pressure: 4 ... 20 mA – 2-wire
temperature: Pt100 – 3-wire passiv
others on request

Special characteristics

- ▶ IS-version zone 0
- ▶ turn-down 1:2 via HART®
- ▶ integrated Pt100 (Pt1000 optional)
- ▶ extremely robust and long-term stable
- ▶ cooling element for media temperature up to 180°C

Optional versions

- ▶ pressure port in super Duplex-steel (1.4410; suitable for sour gas)
- ▶ WECO®2" (2202)

The pressure transmitter HU 400 has been especially developed for extreme operating conditions in the petrochemical industry (on- and offshore sites). A high degree of reliability and accuracy is the precondition for a perfect function during cementing and tightening processes (annulus) on wellbores.

A one-piece pressure port, a high-quality pressure sensor and precise machining and assembly techniques ensure a small drifting and a high long-term stability. A very high resistance against vibration, shock and pressure peaks without any influence on the measurement characteristics is guaranteed. Due to the extreme environmental conditions on-site, it is important to offer solutions to different requirements, as for example an intrinsic-safe version (zone 0), an electrical connection with IP 67 or special steel materials.

Preferred areas of use are



Cementing wellbores
Hydraulic fracturing
Intensivring wellbores



Pressure ranges		
Nominal pressure	[psi]	15 000
Permissible overpressure	[psi]	22 500
Burst pressure \geq	[psi]	30 000
Supply		
2-wire	4 ... 20 mA intrinsically safe version with HART®-communication / $V_S = 12 \dots 28 V_{DC}$	
Performance		
Accuracy ¹	$\leq \pm 0.25\%$ FSO BFSL	
Permissible load	$R_{max} = [(V_S - V_{S_{min}}) / 0.02 A] \Omega$	
Influence effects	supply: 0.05 % FSO / 10 V	load: 0.05 % FSO / k Ω
Long term stability	$\leq \pm 0.1\%$ FSO / year at reference conditions	
Response time	$\leq \pm 1.5$ msec	
¹ accuracy according to IEC 60770		
Thermal effects (Offset and Span)		
Thermal errors	typ.: $\leq \pm 0.05\%$ FSO / 10 K max.: $\leq \pm 0.15\%$ FSO / 10 K in compensated range -20 ... 80 °C	
Permissible temperatures		
Permissible temperatures	medium (with cooling element):	-40 ... 180 °C
	environment:	-40 ... 50 °C
	storage:	-55 ... 125 °C
Calibration		
Calibration signal accuracy	$\leq \pm 0.2\%$ FSO	
Calibration signal	80 % FSO (16.8 mA)	
Electrical protection		
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no function	
Electromagnetic compatibility	emission and immunity according to EN 61326	
Mechanical stability		
Vibration	20 g, 25 Hz ... 2 kHz 7.5 g _{RMS} , 5 Hz – 1 kHz	according to DIN EN 60068-2-6 according to DIN EN 60068-2-64
Shock	500 g / 1 msec	according to DIN EN 60068-2-27
Free Fall	1 m (free fall base: steel)	according to DIN EN 60068-2-32
Materials		
Pressure port / diaphragm	standard: stainless steel 1.4548 (316L) option: super Duplex-steel (1.4410)	
Housing	stainless steel 1.4404 (316L)	
Media wetted parts	pressure port	
Explosion protection		
Approval DX18 HU400	IBExU08ATEX1127 X II 1G Ex ia IIC T4 Ga	
Safety technical maximum values	$U_i = 28 V$, $I_i = 93 mA$, $P_i = 660 mW$, $C_i = 0 nF$, $L_i = 0 \mu H$, the supply connections have an inner capacity of max. 27 nF opposite the housing.	
Permissible temperatures for medium	-40 ... 70 °C	
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -25 ... 70 °C	
Miscellaneous		
Current consumption	max. 25 mA	
Installation position	any	
Weight	4 kg	
Ingress protection	with cable gland: IP 67 without cable gland: IP 00	
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (module A)
ATEX Directive	2014/34/EU	

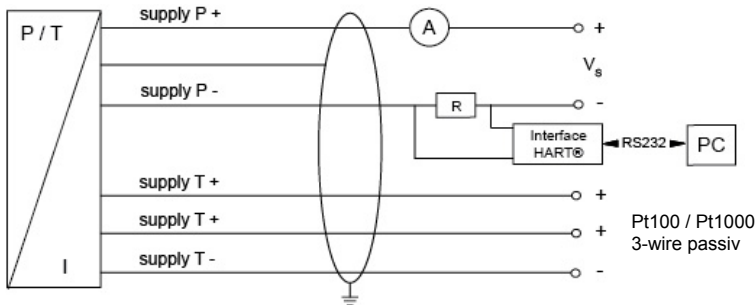
HU 400

Hammer Union Pressure Transmitter

Technical Data

Pin configuration		field housing M20x1.5
Electrical connection		
Pressure	Supply P+	IN+
	Supply P-	IN-
	Shield	
Temperature	Supply T+	T+
	Supply T+	T+
	Supply T-	T-

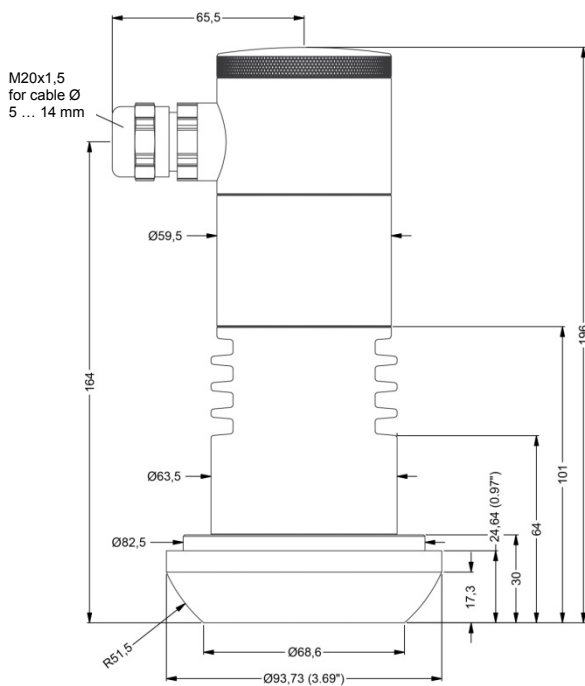
Wiring diagram



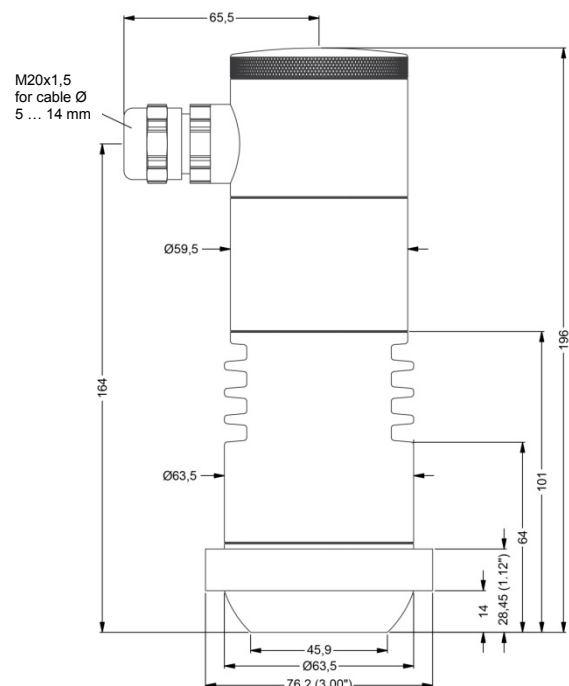
Dimensions (in mm)

standard

on request



WECO® 2" (1502)



WECO® 2" (2202)

HART® is a registered trade mark of HART Communication Foundation.
WECO® is a registered trade mark of FMC Technologies.

© 2019 BD|SENSORS GmbH – The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

Ordering code HU 400

HU 400



Standard version									
Input	[psi]	H	U	5					
	15 000				P	1	5	K	
	customer				9	9	9	9	consult
Output									
	intrinsic safety 4 ... 20 mA / 2-wire								
	with HART® communication								
	customer				I				consult
					9				
Accuracy									
	0.25% FSO BFSL								
	customer				B5				consult
					9				
Electrical connection ¹									
	field housing stainless steel								
	customer				8	8	0		consult
					9	9	9		
Mechanical connection									
	WECO® 2" 1502								
					H	U	0		
	WECO® 2" 2202								
					H	U	1		consult
	customer				9	9	9		consult
Material pressure port									
	stainless steel 1.4548 (17-4PH)								
						7	8		
	super duplex stainless steel								
						1	5		
	customer					9	9		consult
Material diaphragm									
	stainless steel 1.4548 (17-4PH)								
						Z	8		
	super duplex stainless steel								
						1	5		
	customer					9	9		consult
Special version									
	standard								
								0	0
	customer							9	9
									consult

© 2013 BD|SENSORS GmbH - The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

WECO® is a registered trade mark of FMC Technologies.
 HART® is a registered trade mark of HART Communication Foundation.

