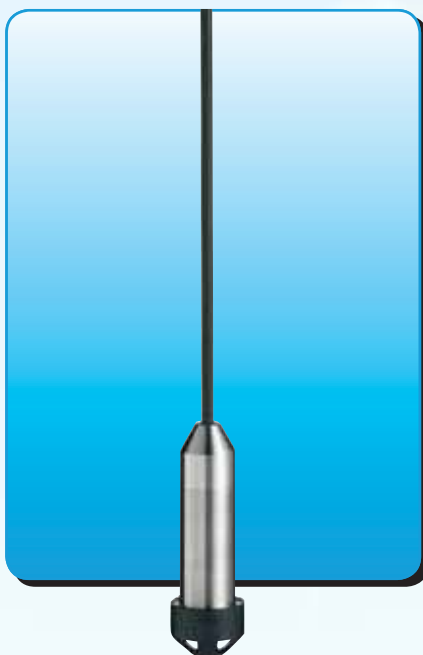
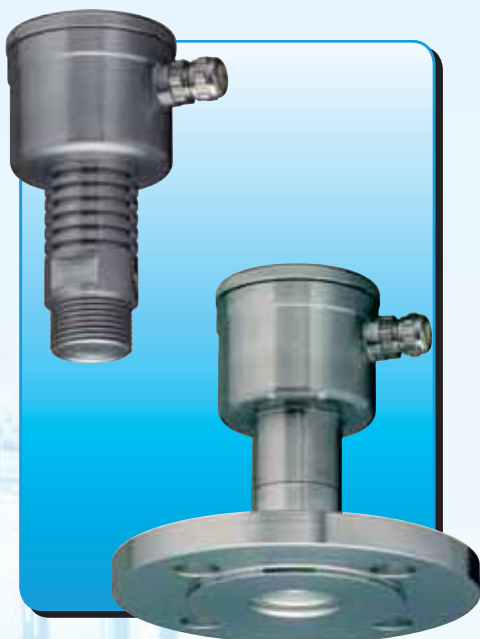




## PRESSURE AND LEVEL TRANSMITTERS for MARINE Applications



### Description

Klay Instruments offers a wide range of pressure and level transmitters in **compact and rugged “All Stainless steel” design**, ideal for applications in the Marine and shipbuilding industry.

The “conventional” series 8000 are internally adjustable on zero and span by 2 potentiometers, while the “Intelligent” series 2000 can be calibrated without test pressure by 3 pushbuttons and a local display, or by HART Protocol.

For topmounting level applications the submersible cable transmitters “Hydrobar” can be used.

#### *All transmitters have the following features:*

- ▶ “ALL STAINLESS” TRANSMITTERS
- ▶ STRONG DIAPHRAGMS
- ▶ ACCURACY 0,2% or 0,1%
- ▶ ZERO/SPAN ADJUSTABLE
- ▶ IP 68 PROTECTION (OPTION)
- ▶ HIGH BURST PRESSURES
- ▶ RUGGED AND COMPACT DESIGN
- ▶ OUTPUT 4-20 mA
- ▶ TEMPERATURE COMPENSATED
- ▶ INTRINSICALLY SAFE ATEX  II 1 G Ex ia IIC T4 Ga

- ▶ MARINE TYPE APPROVALS



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## Pressure transmitters



The series 8000 is a range of “All Stainless steel” pressure transmitters with a strong “flush mounted diaphragm” which can withstand high overpressures. Zero and span are internally adjustable over a wide range and the accuracy is 0.2% from adjusted span. The transmitters are fully temperature compensated.

**The rugged and compact Stainless steel 316 electronics housing makes them ideal for “on-deck applications”.**

### Typical applications are:

- Vacuum / overpressure measurement on pipelines during Charging and Discharging of various products
- Measuring the manifold pipeline pressure
- Ballast pump pressure measurement
- Pressure measurement on Gas vapour alarm systems
- Vapour return line pressure and inert gas pressure measurement

## Level transmitters



The series 8000-SAN is a range of “All Stainless steel” pressure / Level transmitters with a strong “flush mounted diaphragm” which can withstand high overpressures. Zero and span are internally adjustable over a wide range and the accuracy is 0.2% from adjusted span.

**Various process connections are available, like Flanges, threads and many others(more than 30 different connection available).**

The strong flush mounted diaphragm is standard made of SS 316 but can also be delivered with “Gold plating” or with Hastelloy C material.

### Typical applications are:

Level measurement on: Cargo tanks, Service tanks like fresh water and waste water tanks, HFO tanks, Liquid mud / brine tanks, etc.

## ‘Intelligent’ Pressure and Level transmitters


**HART**  
COMMUNICATION PROTOCOL



The above mentioned pressure and level transmitters are also available in a “Intelligent” version, series 2000.

These transmitters are adjustable by 3 pushbuttons and a display, without testpressure. They are also available with the HART protocol.

Standard accuracy is 0.1%.

**\* The series 8000, 2000 and Hydrobar are all available with the Intrinsically safe ATEX  II 1G Ex ia certificate, and do have all major Class Type Approvals, like ABS, DNV, Lloyds register, Germanischer Lloyd, RINA and Bureau Veritas.**



# Submersible Pressure / Level transmitters

The series "Hydrobar" is a range of submersible level transmitters with strong flush mounted diaphragm from SS 316, option: Gold plated or Hastelloy C. The accuracy is 0.2% from adjusted span. There are several versions available with various process connections like flanges or threaded versions and with a fixed range (1) or with adjustable electronics (2).

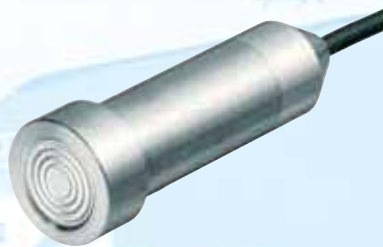
### Typical applications are:

- Level measurement in Ballast tanks, HFO tanks, water tanks, etc.
- Pressure measurement on ballast pumps

For IP68 pressure measurement on the ballast water pumps, the submersible transmitter Hydrobar is available with a threaded process connection and a strong flush mounted diaphragm (3). Vacuum / overpressure ranges are also available (example: -1 to +10 bar).

Submersible level/pressure transmitters with flanged process connections are also available.

When HART protocol is required the "Intelligent" Hydrobar "I" is available with adjustable electronics.



Strong flush diaphragm



## Ordering Information Hydrobar

Order code*:			Hydrobar-cable (length) -				
Measuring Ranges (bar)	Maximum overpressure (bar)	Adjustable span range (bar)	↑	↑	↑	↑	↑
0 - 0,1...0,4	6,4	0 - 0,1 / 0 - 0,4	B				
0 - 0,4...0,7	6,4	0 - 0,4 / 0 - 0,7	C				
0 - 0,7...1,5	10,5	0 - 0,7 / 0 - 1,5	D				
0 - 1 ... 4	16	0 - 1 / 0 - 4	E				
0 - 2,5 ... 10	30	0 - 2,5 / 0 - 10	F				
0 - 7,5 ... 16	60	0 - 7,5 / 0 - 16	G				
<b>Fixed range:</b> Specify calibrated range (not adjustable)			FR				
- Mounting connection: Flange DIN or ANSI (specify size)				F			
- Special mounting connections: Example 1 1/2" or 2" BSP (specify)				X			
<b>OPTIONS</b>							
- Digital local indicator 3 1/2 digit, programmable					I		
- Vacuum Ranges (Specify relative or absolute). Compound range available (example -1 / +1 bar)						V	
- Intrinsically safe: ATEX  II 1 G Ex ia IIC T4 Ga and IECEx							EX
- Hasteloy C diaphragm							G7
- Hytrel cable							G10
- Gold plated diaphragm							G16
- Process connection 1/2" BSP M. (By adapter)							G21
- Process connection 1" BSP (flush diaphragm)							G54

\* Always specify cable length at order code

## Specifications series 8000

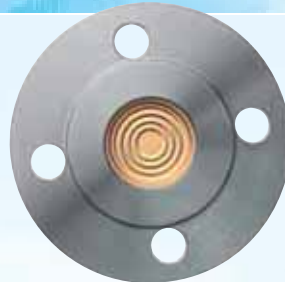
Accuracy	: 0,2% from adjusted span
Ranges	: 0,08 bar to 350 bar
Output	: 4-20 mA, 2-wire
Power supply	: 12 to 36 Vdc (Exi: 13-26,5 Vdc)
Protection	: IP66 (option: IP68)
Process temperature	: -20°C to + 100°C (option: till 250°C !)
Wetted parts	: AISI 316L (standard) option: Hasteloy C, Titanium, Gold plated diaphragm
Material housing	: AISI 304 (option: AISI 316)
Processconnections	: G1/2", G1", G11/2" All DIN or ANSI flanges

## Specifications series 2000

Accuracy	: 0,1% from adjusted span
Ranges	: 0,04 bar to 200 bar
Output	: 4-20 mA (option: HART® protocol)
Adjustments	: By 3 push buttons and display without testpressure
Protection	: IP66 (option: IP68)
Process temperature	: -20°C to + 100°C
Wetted parts	: AISI 316L (standard) option: Hasteloy C, Titanium or goldplated diaphragm
Material housing	: AISI 304 (option: AISI 316)
Processconnections	: G1/2", G1", G11/2" All DIN or ANSI flanges



More than 40 different connections available for both the 8000 and 2000 series



Gold plated  
diaphragm (option)



Klay Pressure transmitters  
on inland chemical tanker

## Specifications Hydrobar

Accuracy	: 0,2% from adjusted span
Measuring ranges	: 0,1 bar to 40 bar
Output signal	: 4-20 mA, 2-wire
Adjustment	: Zero and span internally (not for FR type)
Power supply	: 12 to 36 Vdc (Exi: 13-26,5 Vdc)
External load (max.)	: 550 Ohm/24 V to 1400 Ohm/40 Vdc
Protection grade	: IP68 (sensor and cable)
Process temperature	: -10°C to +70°C
Wetted parts	: AISI 316L (standard)
Material cable	: Polyethylene (PE) (option: Hytrel or PTFE)

## Accessories



Junction Box  
FMD(IP67)  
Art. no. 20069



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