

KLAY-INSTRUMENTS B.V.

INSTRUCTION MANUAL

HYDROBAR

WARNING:

Before installing the HYDROBAR, read the warnings and advisements on page 4. For personal and system safety, and for optimum performance, make sure you thoroughly understand the contents before installing.

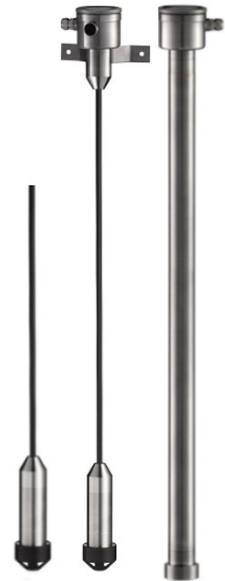
DESCRIPTION:

The HYDROBAR is a hydrostatic level transmitter based upon a piezoresistive monocrystalline silicon sensor, with a very high burst pressure. The amplifier system is based on a single Integrated Circuit (IC), which ensures a perfect linearity in the 4-20 mA output.

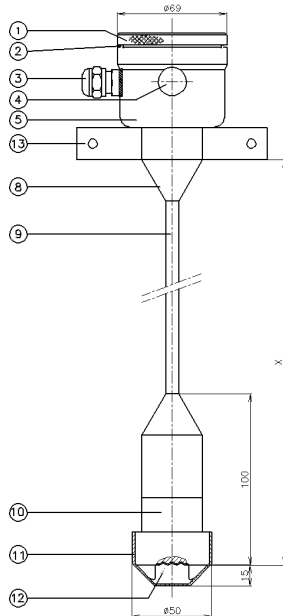
The HYDROBAR has a very strong flush mounted diaphragm SS 316 (AISI). The pressure sensor which is placed behind the diaphragm and the transmitting electronics are physically separate but are joined by an interconnecting cable. The signal from the pressure sensor goes directly to the IC which converts this signal into 4-20 mA.

The compact electronics are placed in a "Stainless Steel" housing which can be installed by means of a wall mounting bracket (SS 304). The HYDROBAR level transmitters are available in cable- or pipe extended versions. The cable length (max. 25 meters) or pipe extension (max. 4 meters) has to be specified.

Zero and Span are internally adjustable, except for type Hydrobar-Cable-**FR**. All versions are standard supplied with a lightning surge protection. Special cable material can be delivered on request (Hytrel or PTFE).



HYDROBAR-CABLE:



PARTS DESCRIPTION:

1. Cover
2. O-ring
3. PG9 Cable Gland
4. Venting
5. Electronic Housing
8. Connection to cable
9. Cable (Specify length X)
10. Foot
11. Diaphragm Protection
12. Diaphragm
13. Wall Mounting Bracket

MATERIAL:

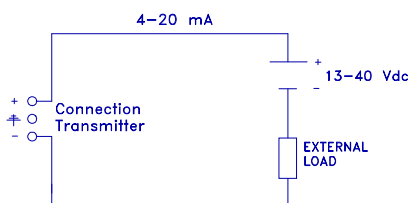
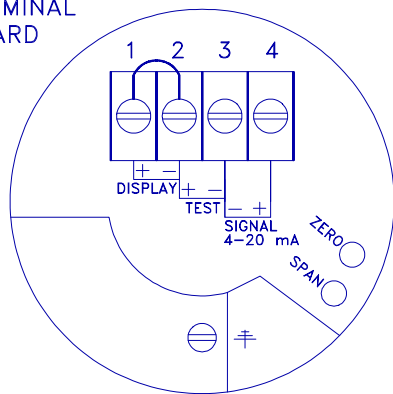
- SS 304
- EPDM
- PA
- PA
- SS 304
- SS 316
- Polyethylene (PE)
- SS 316
- PE
- SS 316 L
- SS 304

N.B.: Standard cable length (X) is 3 meters.
Specify length (X) in the order code.

BAROMETRIC REFERENCE:

The HYDROBAR is in basic a so-called "relative transmitter" which means that barometric changes will not affect the zero (4 mA). The venting hole (3) is placed at the side of the electronic housing and is the barometric reference to atmospheric. The venting must be kept clean.

TERMINAL BOARD



WIRING (HYDROBAR WITH ZERO AND SPAN):

The figure left shows the wiring connection of the transmitter. The 2-wires must be connected to connectors 3(-) and 4 (+) of the terminal board.

WIRING (HYDROBAR "FIXED RANGE"):

Black wire = --
Red wire = +

The signal wiring must be shielded and twisted pair yield the best results. **DO NOT** run signal wiring in open trays with power wiring, or near "heavy" electrical equipment (E.g. Frequency controllers or heavy pumps). Shielding must always be connected at the side of the power supply.

The transmitter ground (internal or external) must **NOT** be grounded when the mounting position is already grounded.

This is extremely important to prevent an "earth loop".

Care must be taken to assure that the polarity of the power supply is correct, a reversal of wiring polarity will not damage the transmitter, but it will not function until the wiring is connected correctly.

CALIBRATION:

All transmitters are fully calibrated at the factory, to the conditions stipulated in users order. It may be advisable to recalibrate the transmitter after shipment. When the buyer has not requested calibration, the transmitter will be calibrated at the lowest span. Testnipples for calibration of the HYDROBAR are available on request. The connector and **zero / span** potentiometers are under the cover.

DIGITAL LOCAL INDICATOR:

The local indicator displays a digital value that is proportional to the pressure measured by the transmitter. The full scale point may be set to any value between 0000 and 1999. The local indicator can be mounted afterwards. Remove the bridge which is placed between connector (1) and (2). Connect the red (+) wire to (1) and the black (-) wire to (2). When using a local indicator the minimum power supply must be **21 Vdc**.

HAZARDOUS AREA:

The "HYDROBAR" is also available as an intrinsic safe device.(option, extra price).

Certification: CE 0344 KEMA 03ATEX1219 X II 1 G Eex ia IIC T4 Intrinsically safe.

$-20^{\circ} \text{C} < T_{\text{amb}} < 70^{\circ} \text{C}$

$U_i = 28 \text{ V}$ $I_i = 110 \text{ mA}$ $P_i = 0,9 \text{ W}$

Cable: $C_i < 82 \text{ nF}$ $L_i = 73 \mu\text{H}$ (Depends on length of cable)

Fixed Range: $C_i < 22 \text{ nF}$ $L_i = 73 \mu\text{H}$ (Depends on length of cable)

EXTD: $C_i = 7,5 \text{ nF}$ $L_i = 73 \mu\text{H}$

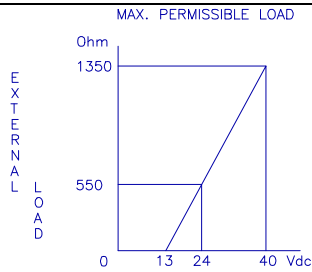
The X in the certificate number refers to a special condition using this transmitter in an Ex-Zone. See for this conditions the ATEX-certificate.

Use a certified power supply in an intrinsic safe area. Installation of this device has to be carried out by a qualified mechanic / installer.

TRACEABILITY YEAR OF MANUFACTURING:

The year of manufacturing of the transmitter can be traced as follows: take the first two numbers from the serial number that is engraved in the transmitter and add 1908.

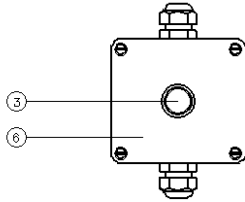
For example: if the serial number is 9302123. The year of manufacturing is $1908 + 93 = 2001$.



POWER SUPPLY / EXTERNAL LOAD:

The minimum power supply is based on the total circuit resistance. The maximum permissible load (Ri max.) in case of 24 Vdc is 550 Û (Ohm). By increasing the power supply, the external load can be increased to 1350 Ohm / 40 Vdc. (see figure left).

$$Ri \text{ max.} = \frac{\text{Power Supply} - 13 \text{ Vdc (min. power supply)}}{20 \text{ mA}}$$



HYDROBAR-Cable (3 m) "FIXED RANGE:"

The Hydrobar-FR can not be adjusted by the customer. Every calibration can be chosen between 1 mWC till 40 mWC and must be done at the factory.

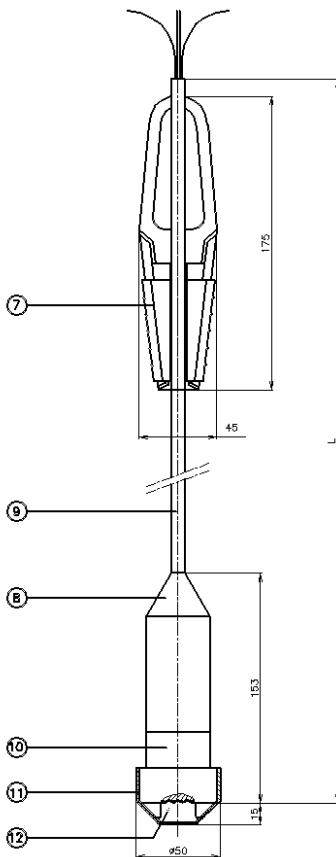
The cable material (9) is Poly Ethylene (PE) with a diameter of 8 mm.

As standard the cable length (L) is 3 meters.

Every cable length is possible but has to be specified in the order code (Length L).

A cable hanger (7) to mount the transmitter on every desired length can be delivered as an option (extra price).

The cable hanger is made from SS 304 and PA.



TEMPERATURE COMPENSATION

The temperature compensation from the Hydrobar FR will be activated if the temperature changes. The output signal from the transmitter needs some time to stabilize. When

- T is 10° C this takes approx. 5 minutes. We strongly recommend to wait 5 till 10 minutes to check the output signal related to the depth (measuring range) of the transmitter to have a good temperature compensation.

WIRING HYDROBAR "FIXED RANGE":

Black wire = --
Red wire = +

BAROMETRIC REFERENCE:

The Hydrobar-FR is a "relative transmitter" which means that barometric changes will not affect the zero (4 mA).

The venting tube at the end of the cable (9) must be placed in an absolute **dry** area to prevent moisture coming into the foot (10).

A special junction box (6) can be delivered as an option (extra price). This junction box has a protection of IP 65 and has a special venting nipple.

As standard there are two PG 11 cable glands at both sides. Dimensions: 80 x 75 x 57.

The venting nipple must be kept clean.

ADVISEMENTS and WARNINGS:

We herewith give a list of some advisements and warnings concerning the application and installation of the electronic level transmitters, the HYDROBAR:

- * *Check if the specifications of the HYDROBAR meet the needs of the processconditions.*
- * *To achieve the most accurate measurement with the HYDROBAR, be aware of the place where the transmitter is mounted. Here are some advises:*
 1. *Don' t mount a level transmitter in or near filling or discharging pipes.*
 2. *In case of automatic cleaning systems or hand cleaning: never point the water jets on the diaphragm, take necessary steps to avoid this.
Guarantee will not be granted.*
- * *The diaphragm of the HYDROBAR is protected with a special protection cap. Prevent damaging of the diaphragm. Guarantee will not be granted.*
- * *As soon as the wiring is brought inside through the PG9 cable gland and connected to the terminal board, make sure the cable gland is tightly fixed, so that moisture cannot enter into the electronic housing.*
- * *NEVER unscrew the venting(3), because it is especially designed to prevent moisture from entering into the electronic housing. If the ambient conditions are very wet, we advise to use a venting through the cable. A special vented cable can be delivered on request.*
- * *Avoid high pressure water-jets pointed at the venting.*
- * *Turn the cover (1) hand-tight, so that moisture cannot enter into the electronic housing.*
- * ***WARRANTY:** The warranty is 1 year after buying.
Klay Instruments B.V. assumes no liability for consequential damage of any kind due to use or missuse of the HYDROBAR. Warranty will be given, to be decided by the manufacturer. Transmitter must be shipped free of charge to the factory on manufacturer' s authorization.*
- * ***NOTE:** Klay Instruments B.V. reserves the right to change its specifications at any time, without notice. Klay Instruments B.V. is not an expert in the customer' s process (technical field) and therefore does not warrant the suitability of its product for the application selected by the customer.*
- * ***CE-rules:**
All our transmitters are manufactured according to the CE-rules. All transmitters are standard equipped with RFI filters. The influence on Radio Frequency Interference between 10 MHz to 10 GHz is neglectable.*

Manufacturer:

 **KLAY INSTRUMENTS B.V.**

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P.O. Box 13

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The Netherlands

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EC-DECLARATION OF CONFORMITY

Klay Instruments B.V.

Nijverheidsweg 5, 7991 CZ Dwingeloo, The Netherlands

Certify that the equipment intended for use in potentially explosive atmospheres, only new products, indicated here after:

Electronic Pressure- and Level Transmitters
Series 8000-SAN, 8000, CER-8000
Hydrobar-Cable, Hydrobar-EXTD, Hydrobar-FR

Are in accordance with:

- directive 94/9/EC of 23 march 1994 (equipment and protective systems intended for use in potentially explosive atmospheres).
- Directive 89/336/EEC of 03 may 1989 (Electro Magnetic Compatibility).
- Harmonized standards:
 - EN 50014: 1997 (General rules)
 - EN 50020: 2002 (Intrinsic safety "i")
 - EN 50284: 1999 (Group II cat. 1G requirements)
 - IEC 61000-6-2: 2001 (EMC, Immunity in industrial location)
 - IEC 61000-6-3: 2001 (EMC, Emission in industrial location)
 - IEC 61000-6-4: 2001 (EMC, Emission in industrial location)
 - NEN-EN 13980: 2002 (Potentially explosive atmospheres – Application of quality systems)

- The type (protection mode "ia") which has been the subject of;

EC-type Examination Certificate Numbers:

KEMA 03 ATEX1219 X

delivered by the KEMA, Utrechtseweg 310, 6812 AR Arnhem, The Netherlands, notified body Nr. 0344, Manufacturing plant in Dwingeloo which has been the subject of;

Production Quality Assurance Notification Nr.:

KEMA 06 ATEX Q0188

delivered by the KEMA, Utrechtseweg 310, 6812 AR Arnhem, The Netherlands, notified body Nr. 0344

- Audit report nr: 2094306-QUA/Ex issued 27 October 2006

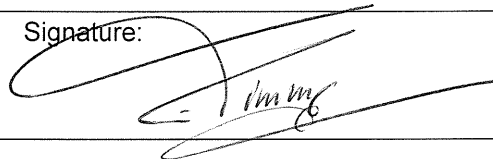
Date: November 1st 2006

E. Timmer

Managing Director

Klay Instruments B.V.

Signature:



The marking of the equipment is as follows:

II 1G EEx ia IIC T4

- "II" means that the equipment has been built for use in surface industries (and not in mines endangered by firedamp).
- "1" equipment for use in Zone 0 (if G)
- "G" equipment for use with gas, vapours or mists
- "EEx" equipment in compliance with European standards for explosive atmospheres
- "ia" equipment in compliance with specific building rules for intrinsically safe equipment
- "C" equipment for use with gas of subdivision C
- "T4" equipment whose surface temperature does not exceed 135°C when used in an ambient temperature < 70 °C.

Protection Grade, Series 8000-SAN, 8000, CER-8000, **IP 65**

Protection Grade, Series Hydrobar-cable, Hydrobar-EXTD, **IP 65**

The Hydrobar-FR and all other submersible parts from the Series Hydrobar are IP 68.

Furthermore, whatever the protection mode, only use cable glands with a protection degree of at least IP 66.

Be sure the cable diameter complies with the selected cable gland. Tighten the cable gland in a proper way.

Never forget to mount the covers of the electronics housings in a proper way.

For other technical details, refer to the instruction manuals of the series transmitters.



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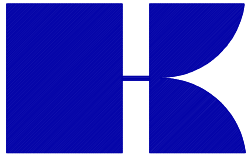
The Netherlands

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KLAY-INSTRUMENTS B.V.

INSTRUCTION MANUAL

HYDROBAR "I"

WARNING:

Before installing the *Hydrobar "I"*, read the warnings and advisements on page 10. For personal and system safety, and for optimum performance, make sure you thoroughly understand the contents before installing.

The *Hydrobar "I"* is an "Intelligent" *free adjustable* hydrostatic submersible level transmitter with a cable (IP 68) for level measurement in water and wasted water (pumping stations, basements, concrete bunkers, etc.). But also for level applications on pulp, slurry, ballast tanks, etc. the *Hydrobar "I"* can be used. Zero and Span are adjustable by means of the Hart[®] protocol (via HHT or PC). Via the software that is delivered with this unit also the engineering units and the electronic damping can be adjusted.

For further description of the software go to page 4 till 8.

The active temperature compensation on the *Hydrobar "I"* in combination with the very strong (laserwelded) diaphragm (AISI 316 L) results in a perfect long term stability.

The compact electronics are mounted in a "Stainless Steel" body which is fixed to the cable. The whole part can be submersed (IP 68) and the transmitter can be installed on the requested height by means of a cable hanger (extra price).

BAROMETRIC REFERENCE:

The *Hydrobar "I"* is in basic a so-called "relative transmitter" which means that barometric changes will not affect the zero (4 mA). The venting tube in the centre of the cable makes the reference to atmospheric pressure.

This venting at the end of the cable must be placed in an ***absolute dry area*** to prevent moisture coming into the transmitter.

A special junction box can be delivered as an option. This junction box has a protection grade of IP 66 and has a special venting nipple. This venting must be kept clean. Dimensions: 80 x 75 x 57.

As standard there are two PG 11 cable glands at both sides.

WIRING (Hydrobar "I"):

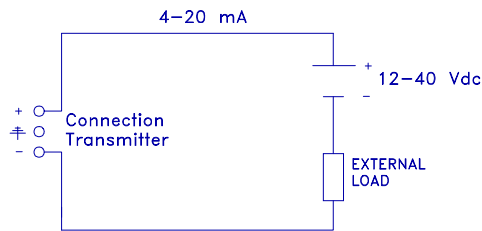
Black wire = --
Red wire = +

The signal wiring must be shielded and twisted pair yield the best results. Do **NOT** run signal wiring in open trays with power wiring, or near "heavy" electrical equipment (E.g. Frequency controllers or heavy pumps). Shielding must always be connected at the side of the power supply.

The transmitter ground must **NOT** be grounded when the mounting position is already grounded.

This is extremely important to prevent an "earth loop".



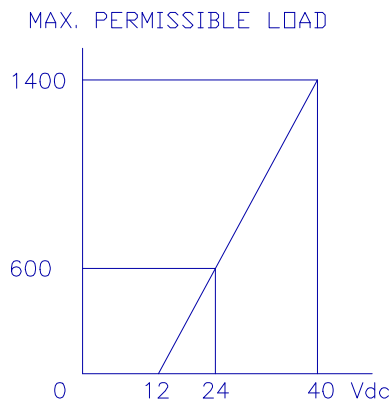


Care must be taken to assure that the polarity of the power supply is correct, a reversal of wiring polarity will not damage the transmitter, but it will not function until the wiring is connected correctly.

CALIBRATION:

The Hydrobar "I" transmitters are fully calibrated at the factory, to the conditions stipulated in users order. When the buyer has not requested calibration, the transmitter will be calibrated at the highest span. For calibration by using testpressure testnipples are available.

For "dry" calibration the software should be used which is included in the delivery (for explanation see page 4 till 8).



POWER SUPPLY / EXTERNAL LOAD:

The minimum power supply is based on the total circuit resistance. The maximum permissible load (Ri max.) in case of 24 Vdc will be 600 Ohm. By increasing the power supply, the external load can be higher, till 1400 Ohm / 40 Vdc. (see figure left).

$$Ri \text{ max.} = \frac{\text{Power Supply} - 12 \text{ Vdc (min. Power supply)}}{20 \text{ mA}}$$

Note:

At 250 Ohm the power supply must be at least 17 Vdc.

INTRINSICALLY SAFE;

The Hydrobar "I" can be certified for use in hazardous areas in category 11 1G or 11 1GD (intrinsically safe, option extra price).

The X in the certificate number refers to a special condition using this transmitter in an Ex-Zone. See for this conditions the ATEX-certificate.

Certification: CE 0344 KEMA 03ATEX1092X

For a detailed explanation see EC- Declaration of conformity : [EC-DOC-ATEX-2000GD](#).

Use a certified power supply in an intrinsic safe area.

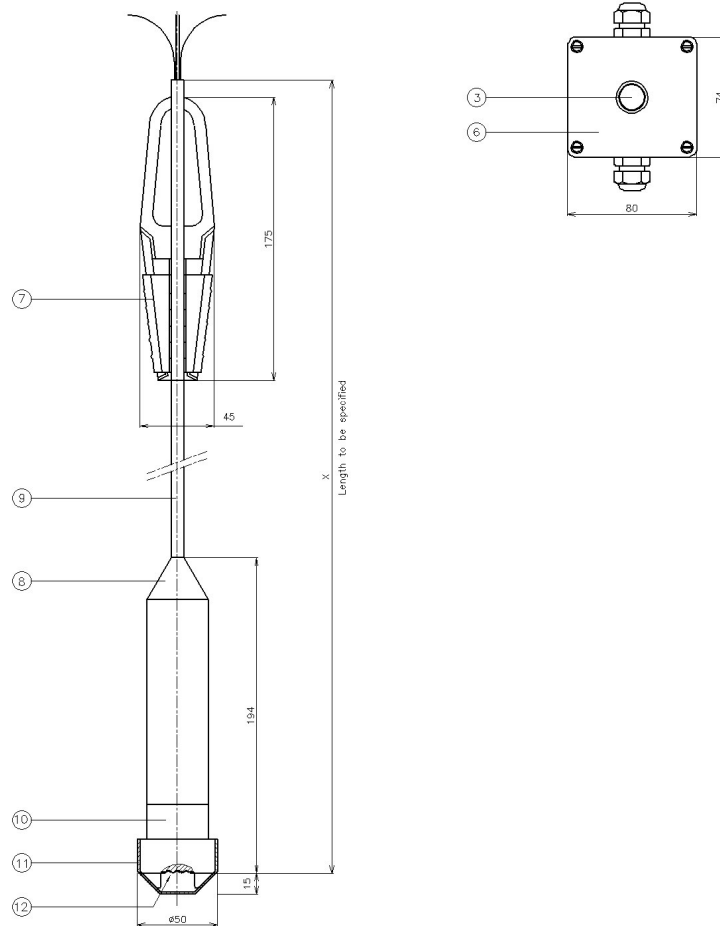
Installation of this device has to be carried out by a qualified mechanic / installer.

TRACEABILITY YEAR OF MANUFACTURING:

The year of manufacturing of the transmitter can be traced as follows: the first code from the serial number that is engraved in the transmitter is 6 which is the code for the series Hydrobar "I", the next code is the year of manufacturing.

For example: if the serial number is 6401001. The transmitter has been manufactured in 2004, in the month January and it was the first transmitter in this month.

"Intelligent Hydrostatic Submersible Level transmitter"
 Type: Hydrobar "1"-Cable (..m)-range
Included Hart® Protocol



DESCRIPTION PARTS:

| Item | Quantity | Description | Material |
|------|----------|---|------------|
| 3 | 1 | Venting nipple (option, extra price) | PA |
| 6 | 1 | Connection box with venting (option, extra price) | PC |
| 7 | 1 | Cable Hanger (option, extra price) | AISI 304 |
| 8 | 1 | Connection to cable | AISI 316 |
| 9 | 1 | Cable with venting tube (diameter 8 mm) | PE |
| 10 | 1 | Foot | AISI 316 |
| 11 | 1 | Diaphragm protection cap | PE |
| 12 | 1 | Diaphragm | AISI 316 L |

The cable material (9) is Poly Ethylene (PE) with an outside diameter of 8 mm.
 As standard the cable length (L) is 3 meters, however every cable length can be delivered on request and has to be specified in the ordering code (extra price above 3 meters).
 The venting tube at the end of the cable must be placed in an **absolute dry area** to prevent moisture coming into the foot. For a good venting a junction box (6) with a protection grade of IP 66 can be delivered on request (extra price). This connection box has a special venting nipple (3).
 A cable hanger (7) to mount the transmitter on every desired length can be delivered (extra price).

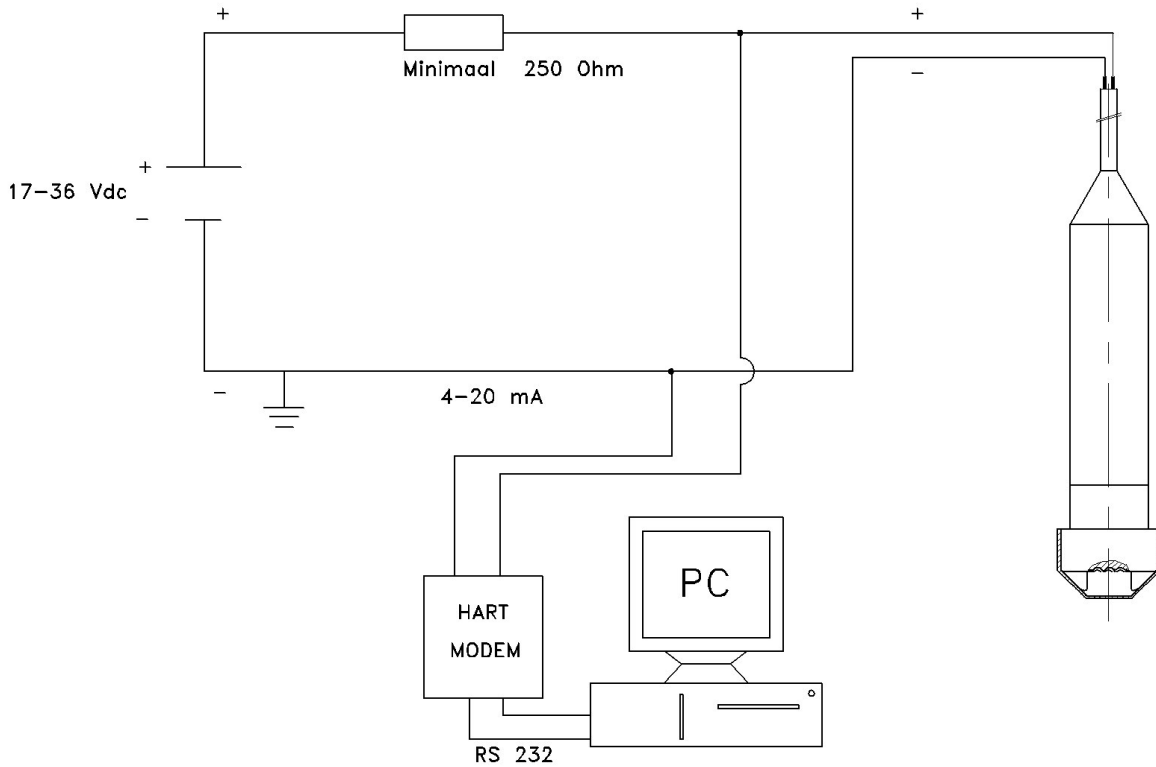
PROGRAMMING THE HYDROBAR "I" VIA THE PC :

For programming the series *Hydrobar "I"* you must use a Hart-modem.
 Also a minimum resistance of 250 Ohms *must* be present in the loop of the 2-wire system.
 (See figure below). This is necessary for a good communication.
 If other equipment is part of the 4-20 mA loop (with a resistance of at least 250 Ohm) it is ***not***
 necessary.

Note: If 250 Ohm is present in the loop the power supply must be 17 Vdc or higher.

The *Hydrobar "I"* can also be programmed by means of the Hand Held Terminal (HHT) from the "HART Foundation" or the HHT from "Rosemount" (type 275 Hart Communicator).

The HART Communicator provides a common communication link to all HART-compatible, microprocessor-based instruments. (HART = Highway Addressable Remote Transducer).

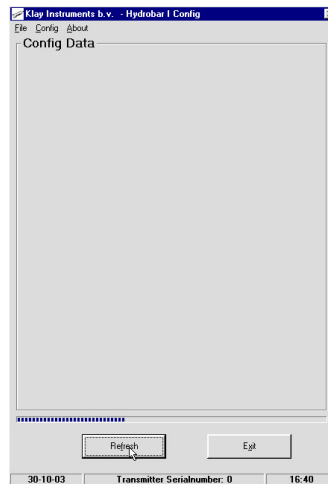


INSTALLATION OF THE SOFTWARE (is included in the shipment):

Run the "setup.exe" from the CD-rom or the station where the software is stored. After the setup in the directory programs an additional program called "Hydrobar I config" is visible. If you push this button the following window appears:

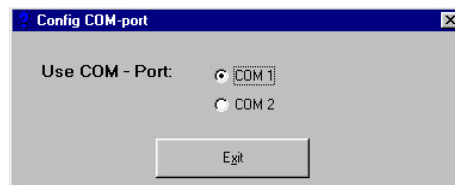


Push "Ok" to get the next window.



The software will automatically search for the Hydrobar "I" that is connected (can take a few seconds).

When the transmitter is not found you have to choose another COM-port. Via Config (Com settings) you can do this (see window below).



If this also does **not** work, the connection between the modem and the computer or the connection between the modem and the Hydrobar "I" must be checked. Push again Connect.

Now the next window appears:

All the settings from the transmitter will be shown.
The information in the white areas can be changed and must be confirmed with **Send**.

Config Data:

Importing or Changing the Tagnummer. This can be figures and letters.

Fixed Data:

The maximum and minimum values from the span and the minimum value from the zero which can be programmed.

Measuring Range:

These are the actual values where the transmitter has been adjusted at.

Zero : the zero which equals 4 mA

Span : the span which equals 20 mA

Unit : the engineering unit which is used for the adjustments on zero and span.

If the *Unit* (engineering unit) is changed, automatically the values for the *zero* and the *span* will be converted to the new *Unit*. (see also the conversiontable on the next page).

The values for the *zero* and *span* can be changed within the limits that are shown below **Fixed Data**.

CONVERSION TABLE:

| CONVERSION FACTOR | DISPLAY |
|-------------------|----------------------------|
| 1.000 | mH ₂ O (mWC) |
| 1000 | mmH ₂ O (mm WC) |
| 0.09806 | Bar |
| 98.0665 | Mbar |
| 1.4223 | PSI |
| 0.0967 | Atm |
| 9.80665 | KPa |
| 0.009807 | MPa |
| 0.1 | Kgf/cm ² |
| 73.556 | mm HG |
| 40.81633 | inH ₂ O ("WC) |
| 2.895906 | "HG |

If the Hydrobar "I" has be adjusted by using test (air) pressure you have to use the buttons "set current pressure at 4 mA" and "set current pressure at 20 mA".

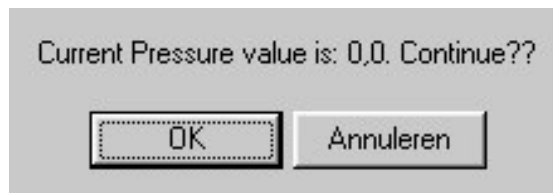
Set current pressure at 4 mA:

The next window appears.

This is the value at 4 mA. In most cases this is the atmospheric pressure.

If the zero must be 0 barg (= atmospheric pressure) push "OK".

After this has been done the main window will appear again (see page 6).

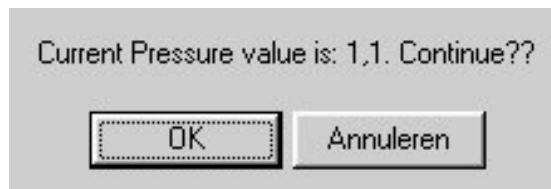


Set current pressure at 20 mA:

The next window appears.

This is the value at (20 mA). If the span must be for example 1,1 barg you have to put test (air) pressure on the diaphragm equal to 1,1 barg. Now push "OK".

After this has been done the main window will appear again.



Extra:

Damping: Electronic damping can be adjusted from 0 till 25 seconds.

Output: The transmitter has an output of 4-20 mA as standard.
You can have a reversed output 20-4 mA.

Current Simulation: You can simulate the current between 4 and 20 mA.

Fixed Current (mA): Put the requested current value in the white area and push **<enter>** or **Send**.



The output from the transmitter will now give the imported current. To get another current output, you have to change the value and confirm with **<enter>**.



To quit the current simulation push **Abort**.

Note:

If the program has not been closed in a proper way, the current simulation remains active. To abort the simulation the transmitter must be switched off (disconnect the wires).

Error Messages:

The next message appears if the *span* will be lower as the *minimum span* or if the *zero* will be lower than the *minimum zero*.



The next message appears if the requested *span* is higher as the *maximum span*.



Technical Specifications:

| | | | |
|--|--|---|---|
| <i>Manufacturer:</i> | Klay Instruments B.V. | | |
| <i>Instrument:</i> | Hydrobar "I" | | |
| <i>Output:</i> | 4-20 mA (+ Hart [®] Protocol) | | |
| <i>Power supply:</i> | 12-36 Vdc (Ex: 12-30 Vdc) 17 Vdc (if 250 Ohm is present in the loop) | | |
| <i>Accuracy:</i> | 0,1% from the adjusted range | | |
| <i>Measuring Range:</i> Hydrobar I | <i>Code</i> | <i>Fixed Measuring Range(bar)</i> <i>Minimum / maximum</i> | <i>Max. over pressure</i> <i>(bar)</i> |
| | 1 | 0 - 0,04 / 0 – 0,4 | 6,4 |
| | 2 | 0 - 0,12 / 0 – 1,2 | 10,5 |
| | 3 | 0 – 1 / 0 – 5 | 16 |
| | 0 | 0 - 0,4 / 0 – 4 | 16 |
| <i>Process temperature</i> | -10° C tot + 70° C (- 14° F tot + 158° F) | | |
| <i>Temperature effect:</i> | 0,01% / K | | |
| <i>Ambient temperature:</i> | -10° C tot +70° C (-14° F tot + 158° F) | | |
| <i>Damping:</i> | 0,5 tot 25 seconds (free adjustable) 0,5 second (= Standard damping ex work) | | |
| <i>Protection grade</i> | IP 68 (only the submersible parts) IP 65 (the venting tube at the end of the cable) | | |
| <i>Material wetted parts:</i> | Foot and connection: AISI 316 Diaphragm: AISI 316 L Cable: PolyEthyleen (PE) Sealing between Cable and connection: Viton <i>Other materials on request</i> | | |
| | | | |

Technical specifications can change without notice.

ADVISEMENTS and WARNINGS:

We herewith give a list of some advisements and warnings concerning the application and installation of the electronic level transmitters, the Hydrobar "1":

- * **Check if the specifications of the Hydrobar "1" meet the needs of the process conditions.**
- * **To achieve the most accurate measurement with the Hydrobar "1", be aware of the place where the transmitter is mounted. Here are some advises:**
 1. **Don' t mount a level transmitter in or near filling or discharging pipes.**
 2. **In case of automatic cleaning systems or hand cleaning: never point the water jets on the diaphragm, take necessary steps to avoid this.**

Warranty will not be granted if the diaphragm is damaged.
- * **The diaphragm of the Hydrobar "1" is protected with a special protection cab. Prevent damaging of the diaphragm. Warranty will not be granted.**
- * **The venting at the end of the cable must be placed in an absolute dry area to prevent moisture coming into the transmitter. For a good venting a special junction box can be delivered as an option. This junction box has a protection grade of IP 66 and has a special venting nipple. Dimensions: 80 x 75 x 57.**
- * **Avoid high pressure water-jets pointed at the venting.**
- * **WARRANTY: The warranty is 1 year after buying. Klay Instruments B.V. assumes no liability for consequential damage of any kind due to use or misuse of the Hydrobar "1". Warranty will be given, to be decided by the manufacturer. Transmitter must be shipped free of charge to the factory. Klay Instruments B.V. is not an expert in the customer' s process (technical field) and therefore does not warrant the suitability of its product for the application selected by the customer.**
- * **Klay Instruments B.V. reserves the right to change its specifications at any time, without notice.**
- * **CE-rules: All our transmitters are manufactured according to the CE-rules. All transmitters are standard equipped with RFI filters. The influence on Radio Frequency Interference between 10 MHz to 10 GHz is neglectable.**

Made by::

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