

## INSTRUCTION MANUAL

# AquaCER

### **DESCRIPTION:**

The AquaCER is a hydrostatic level transmitter based upon a capacitance ceramic sensor, with a very high burst pressure. The amplifier system is based on a microprocessor, which ensures a perfect linearity in the 4-20 mA output. The compact electronics are placed in a "Stainless Steel" housing which can be installed by means of a wall mounting bracket (SS 316).

The ceramic sensor is sealed with an O-Ring (material: VITON®). Other materials are available on request.

The standard cable length is 3 meters. Other lengths up to a maximum of 80 meters should be specified when ordering.

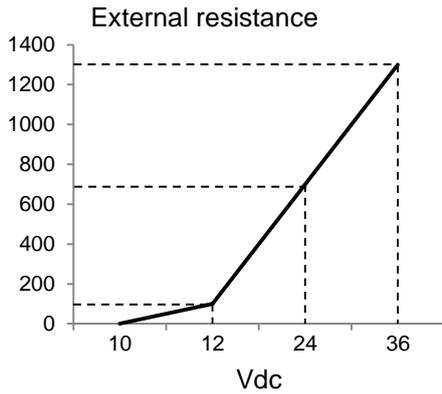
As standard, the AquaCER is delivered with a fixed range and an accuracy of 0.2%.

At an additional cost, the AquaCER "I" is available with a **Fixed Range** and an accuracy of 0.1% of the set range. If desired, the AquaCER-I can come with software where the zero and span are entirely free adjustable (option H). See also the brochure AquaCER.

### **WARNING:**

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





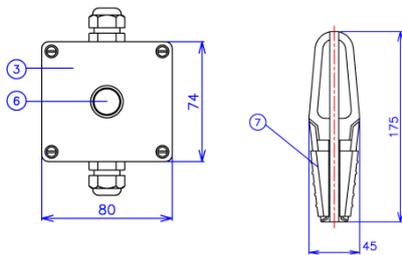
### POWER SUPPLY / EXTERNAL LOAD

The minimum power supply is based on the total circuit resistance. The maximum permissible load ( $R_i$  max.) in case of 24 Vdc is 550  $\Omega$  (Ohm). By increasing the power supply, the external load can be increased to 1150 Ohm / 36 Vdc. (see figure left).

$$R_i \text{ max.} = \frac{\text{Power Supply} - 10 \text{ Vdc (min. power supply)}}{20 \text{ mA}}$$

### AquaCER-Cable(3m)-FR "FIXED RANGE"

The AquaCER-Cable-FR cannot be adjusted by the customer. Every calibration can be chosen between 1 mWc till 20 mWc and must be done at the factory. The cable material (8) is Polyurethane (PUR) 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 AquaCER-Cable-FR will be activated if the temperature changes. We strongly recommend to wait 5 till 10 minutes after installation to check the output signal, related to the depth (measuring range) of the transmitter to have a good temperature compensation.

### WIRING (AQUACER "Fixed Range"):

Black wire = -  
Red wire = +

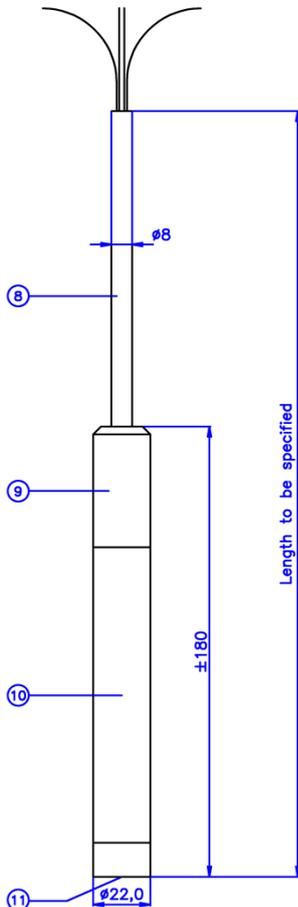
The instrument always needs to be connected to earth. **Please ensure that the instrument is not connected to earth twice to prevent an 'earth loop'.**

### BAROMETRIC REFERENCE

The AquaCER-Cable-FR is a "relative transmitter" which means that barometric changes will not affect the zero (4 mA). The end of the cable must be placed in an absolute **dry** area to prevent moisture coming into the venting tube. A special junction box (3) can be delivered as an option (extra price). This junction box has a protection of IP 66 and has a special venting nipple. As standard there are two PG 11 cable glands mounted on both sides. Dimensions: 80 x 75 x 57. The venting nipples must be kept clean.

### TRACEABILITY YEAR OF MANUFACTURING

The year of manufacturing of the transmitter can be traced as follows: The first code (Prefix number) identifies the transmitter as a AquaCER. The second code from the serial number that is engraved in the transmitter is the year of manufacturing. For example: if the serial number is 7309014, the second code indicates 2013, the third codes indicates the month (2 positions) September and it was the 14<sup>th</sup> transmitter in this month



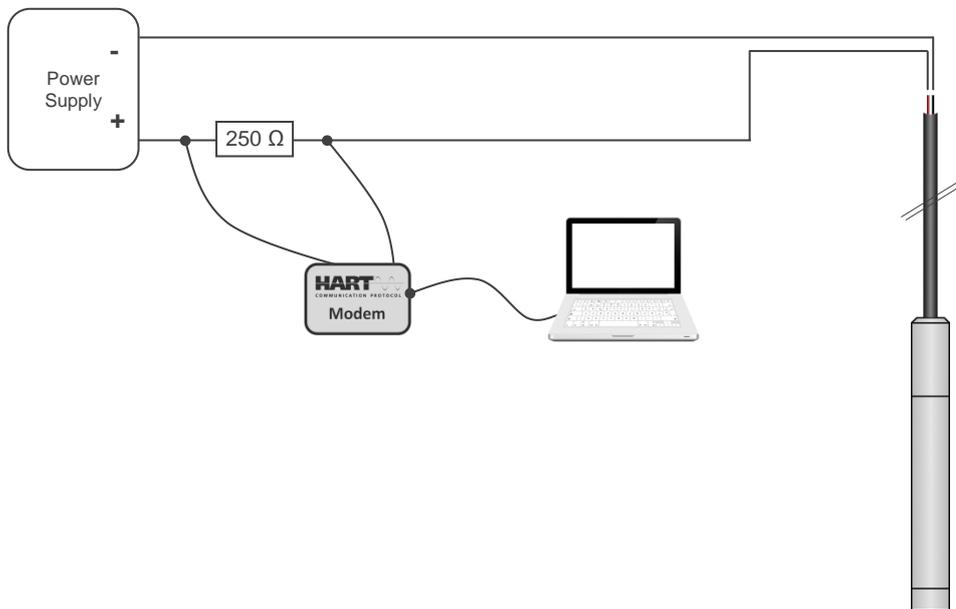
## HART COMMUNICATION

For programming the AquaCER a Hart modem must be used. A resistance of at least 250 ohms must be placed in the 2-wire system. This is necessary for proper communication. When other devices are used in the circuit a resistance of 250 ohms or more must be used. The connection methods are shown below.

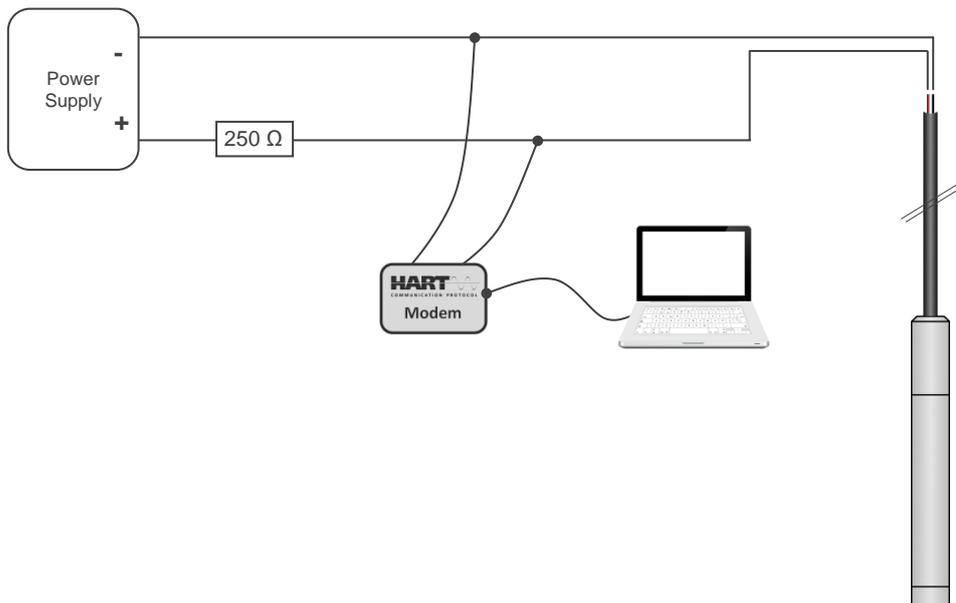
### ADVISEMENTS

- A Hand Held Terminal (HHT) of the "HART Foundation" or the HHT from "Rosemount" (type 275 Hart Communicator) can also be used for communicating with the AquaCER. The connection method is similar as shown below.
- When a loop resistance of 250  $\Omega$  is used, a supply voltage of at least 17 Vdc must be connected.
- Below two connection methods are shown. Different connection methods can limit the function of the HART communication.

*Option 1: HART® Modem connected across the loop resistor.*



*Option 2: HART® Modem connected across the transmitter.*



## PRECAUTIONS AND WARNINGS

*Below is a list of some recommendations concerning the application and installation of the electronic level transmitter, the AquaCER:*

- *Check if the specification of the AquaCER meet the process conditions.*
- *To achieve the most accurate measurement with the AquaCER, be aware of the place where the transmitter is mounted.*

*Here are some advises:*

- *Don't mount a level transmitter in- or near filling or discharging pipes.*
- *In case of automatic cleaning systems or hand cleaning: never point the water jets on the diaphragm, take necessary steps to avoid this.*



*Prevent damage to the diaphragm. Guarantee will not be granted.  
Damage to the gasket is not covered under warranty.*

- **WARRANTY:** *The warranty is 1 year after delivery.  
Klay Instruments B.V. does not accept liability for consequential damage of any kind due to use or miss use of the AquaCER. Warranty will be given, to be decided by the manufacturer. The 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.*

### **OPTIONS:**

- *Robust cable clamp (Stainless steel and PA).*
- *A special junction box with a protection rating of IP 66 is available:  
Dimensions: 80 x 75 x 57.*

### **CE / EMC-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 neglect able.*

*Manufactured by:*

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