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**aquasant** 

ZERTIFIKATE | CERTIFICATE | CERTIFICATS

# IMPEDANCE MEASURING SYSTEMS

IMPEDANZ MESSSYSTEME

SYSTÈMES DE MESURE D'IMPÉDANCE



Manufacturer, Sales, Service	Aquasant Messtechnik AG,   Hauptstrasse 22, Postfach, CH-4416 Bubendorf
Communication	T +41 61 935 5000   info@aquasant-mt.com, www.aquasant.com
Doc	ZEN IMPQ 2509 - CERTIFICATE_Impedance_SEV09_QTI_SEV22.docx
Version	ZEN IMPQ 2509/1
Author	Thomas Inauen
Changes	Reserved

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# QS Zürich | Certificate ISO 9001: 2015

QS Zürich AG  
Postfach 6335, 8050 Zürich  
info@quality-service.ch



## Certificate

No. 6972

**aquasant** 

**Aquasant Messtechnik AG**

Hauptstrasse 22  
CH-4416 Bubendorf

QS Zürich AG certifies that the management system of the above mentioned company and above mentioned location has been evaluated and meets the requirements established by the following rules:

**ISO 9001: 2015**

**The management system includes:**

**Development, manufacturing and sales of measuring-, monitoring- and controlling-equipment for the chemical industry, the biotechnology, the food industry and the petrochemistry**

During the period of validity of this certificate, the management system of the company must always comply with the requirements of the certified standards.

For updated amendments within the scope of certification of the present certificate, please refer to <https://www.quality-service.ch/>

Previous cycle until:	01.07.2024
Start current cycle:	02.07.2024
Recertification audit:	06.06.2024
Date of issue:	07.06.2024
First certification date:	01.03.1996
Validity (Subject to successful surveillance audit):	02.07.2024 - 01.07.2027





26.02.2025, Management

## CSA GROUP | Production/Product Quality Assurance Notification



### 1 PRODUCTION/PRODUCT QUALITY ASSURANCE NOTIFICATION

### 2 Equipment and protective systems intended for use in potentially explosive atmospheres Directive 2014/34/EU

Conformity to Type based on Quality Assurance of the Production Process/Product Quality Assurance

### 3 Notification No. **KIWA 19ATEXQ1234**

### 4 Equipment, protective system or components as listed:

Controllers and sensors for Impedance measuring technique of parting, threshold, level;  
Electro-optical fluid overflow protection;  
Electro-optical turbidity measurement;  
Threshold conductivity sensor technique;  
Radar level measurement

Flameproof Enclosures (d)  
Increased Safety (e)  
Non-electrical equipment (h)  
Intrinsic Safety (i)  
Encapsulation (m)  
Optical Radiation (op is)  
Dust Ignition Protection by Enclosure (t)

### 5 Manufacturer or Authorised Representative:

**Aquasant Messtechnik AG**  
Hauptstr. 22  
4416 Bubendorf  
Switzerland

### 6 Manufacturing locations: As above

### 7 CSA Group Netherlands B.V., notified body number 2813 in accordance with Article 17 of the Council Directive 2014/34/EU, notifies that the manufacturer has a quality system which complies with the requirements of Annexes IV & VII of Directive 2014/34/EU.

### 8 This notification is based upon Report No. 80135863 issued on 22 July 2022. This notification can be withdrawn if the manufacturer no longer satisfies the requirements of Annexes IV/VII. Results of periodical assessment of the quality system form part of this notification.

### 9 According to Article 16 [3] of Directive 2014/34/EU the CE marking shall be followed by the identification number 2813 of CSA Group Netherlands B.V., as the Notified Body involved in the production control stage.

Date of Initial Certification: 06 November 2019

Date of Issue: 18 August 2022

Date of Expiry: 24 October 2025

Michelle Halliwell  
On behalf of CSA Group Netherlands B.V.



Notification No. **KIWA 19ATEXQ1234**

This certificate remains valid subject to the company maintaining its system to the required standards, which will be monitored by CSA. The use of this certificate, marks and logos are subject to the Regulations Applicable to Holders of CSA Group Netherlands BV certificates  
CSA Group Netherlands B.V. Utrechtseweg 310, Building B42, 6812AR, Netherlands

# EU Declaration of Conformity SEV 22 | QTI 820 K

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## EU DECLARATION OF CONFORMITY en

**Manufacturer:** Aquasant Messtechnik AG, Hauptstrasse 22, 4416 Bubendorf, Switzerland  
**Brand:** **aquasant®**  
**Notified body:** N° 2813, CSA Group Netherlands B.V.

**Description:** The microprocessor control unit «QTI 820 K» is used for power supply and evaluation of measuring pulses which are transmitted from the impedance measuring probe as a sum signal.

We hereby declare under our sole responsibility that the products:

<b>Product</b>	Control units <b>QTI 820 K</b>
Inspection certificate number	SEV 22 ATEX 0591
Notified body	N° 1258   Eurofins E&E

comply with the following European guidelines under the harmonised standards or normative documents:

ATEX RL 2014/34/EU	EN IEC 60079-0:2018 EN 60079-11:2012
Low Voltage Directive 2014/35/EU	--
EMV RL 2014/30/EU	EN 61000 EN 61326
RoHS RL 2011/65/EU	EN IEC 63000:2018

The standards listed may deviate from those in the type examination certificate. In this case Aquasant Messtechnik AG declares that the product complies with the updated standards and that the basic safety and health requirements are met.

**Bubendorf, 01.04.2023**

**Roger Inauen**  
 Head Manufacturing

VxZ-EU-KONFORMITÄT-CONFORMITY\_SEV22\_QTI820K.docx

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Eurofins | EU-Type Examination Certificate SEV 22 | QTI 820 K



**EU-Type Examination Certificate**

- (1)
- (2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 2014/34/EU**
- (3) Certificate number: **SEV 22 ATEX 0591**
- (4) Product: Microprocessor Control Unit, Type: QTI 820K
- (5) Manufacturer: Aquasant Messtechnik AG
- (6) Address: Hauptstrasse 22, 4416 Bubendorf, Switzerland
- (7) The equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) Eurofins, notified body No. 1258, in accordance with article 17 of Directive 2014/34/EU of the European parliament and of the council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.  
The examination and test results are recorded in confidential report no 22CH-00044.X11
- (9) Compliance with the essential health and safety requirements has been assured by compliance with:  
**EN IEC 60079-0:2018**  
**EN 60079-11:2012**  
Except in respect of those requirements listed at item 18 of the schedule.
- (10) If the sign «X» is placed after the certificate number, it indicates that the product is subjected to special conditions for safe use specified in the schedule to this certificate. The sign "U" is placed after the certificate number. It indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.
- (11) This EU type examination certificate relates only to design and construction of the specified product. Further requirements of this directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- (12) The marking of the product shall include the following:

II (1)G [Ex ia Ga] IIC  
 II (1)D [Ex ia Da] IIIC

**Eurofins Electric & Electronic Product Testing AG**  
**Notified Body ATEX**

Martin Plüss  
Product Certification

www.eurofins.ch

Fehraltorf, 2022-03-17

Issue: 0

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T8a\_V01





(13)

## Appendix

(14)

EU-Type Examination Certificate no. SEV 22 ATEX 0591

(15) **General product information**

The microprocessor control unit QTI 820K is used for the power supply and evaluation of measuring impulses which are transmitted from the impedance measuring probe as a sum signal.

**Area of application:**

The control unit is installed in the control cabinet in the control room (not in the Ex zone). In the chemical industry, for example, the device is used for signal evaluation from continuous interface, level, limit value regulation and product monitoring.

**Functionality:**

The product-enclosed electrode system of an interface, rod or tube probe, for example, changes the impedance as a function of the dielectric and electrically conductive properties of organic products and aqueous solutions. The measured impedance is converted as a total signal by the on-site measurement electronics "MTI" or "AMEI" directly into a digital standardized signal. The measured values in the normalized signal range are product-specific and characteristic of different products, such as those that occur when measuring the interface of two immiscible liquids. This product-specific measurement corresponds to a number in the range 0 to 3750. The physical impedance measurement of a product is thus represented as a numerical value, which is referred to as the pulse count.

Classification of installation and use:

stationary

Ingress protection:

IP20

Rated ambient temperature range (°C):

-20 °C to +60 °C

**Rating:**

Input parameters: Um: 36 V

Type of protection Intrinsic Safety Ex ia IIC.

Output parameters:

Uo	≤	18.9 V
Io	≤	49 mA
Po	≤	231 mW
Ci	≤	7.4 nF
Li	≤	0
Linear characteristic		
Co	≤	190 nF
Lo	≤	1 mH





(16) **Report number** 22CH-00044.X11

(17) **Special conditions for safe use**  
None

(18) **Essential health and safety requirements**

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

<b>Clause</b>	<b>Subject</b>
None	

(19) **Drawings and Documents**  
See test report "Manufacturer's Documents"



# EU Declaration of Conformity SEV 22 | Impedance probes

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## EU DECLARATION OF CONFORMITY en



**Manufacturer:** Aquasant Messtechnik AG, Hauptstrasse 22, 4416 Bubendorf, Switzerland  
**Brand:** aquasant®  
**Notified body:** N° 2813, CSA Group Netherlands B.V.

**Description:** The aquasant® bar, rope and pipe probe with mounted or separate impedance measuring electronics type MTI <sup>\*\*\*</sup>/\* is used, in connection with an aquasant® microprocessor control unit, for measured value acquisition in hazardous areas.

We hereby declare under our sole responsibility that the products:

<b>Product</b>	Impedance probe <b>S**   K**   F**   TSS**   MTI <sup>***</sup>/*</b>
Inspection certificate number	SEV 09 ATEX 0133 X
Notified body	N° 1258   Electrosuisse

comply with the following European guidelines under the harmonised standards or normative documents:

ATEX RL 2014/34/EU	EN 1127-1:2019 EN 60079-0:2018 EN 60079-1:2014 / COR : 2018 EN 60079-11:2012 EN 60079-26:2015
Low Voltage Directive 2014/35/EU	--
EMV RL 2014/30/EU	EN 61000 EN 61326
RoHS RL 2011/65/EU	EN IEC 63000:2018

The standards listed may deviate from those in the type examination certificate. In this case Aquasant Messtechnik AG declares that the product complies with the updated standards and that the basic safety and health requirements are met.

**Bubendorf, 01.04.2023**

**Roger Inauen**  
 Head Manufacturing

VxZ-EU-KONFORMITÄT-CONFORMITY\_SEV09\_imp\_Sonden.docx

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## EC-Type Examination Certificate

- (1)
- (2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 94/9/EC**
- (3) Examination Certificate Number  
**SEV 09 ATEX 0133 X**
- (4) Equipment: Rigid, flexible and tubular probes with impedance measuring electronics type series S\*\*, K\*\*, F\*\* and TSS
- (5) Manufacturer: Aquasant-Messtechnik AG
- (6) Address: Hauptstrasse 22, CH-4416 Bubendorf
- (7) The equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) Electrosuisse SEV as notified body No. 1258 in accordance with article 9 of the Council Directive of the European Communities of 23 March 1994 (94/9/EC), certifies that this equipment has been found to comply with the essential health and safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.  
The results of the examination are recorded in confidential report No. 08-IK-0395.01
- (9) Compliance with the essential health and safety requirements has been assured by compliance with:  

<b>EN 1127-1:2007</b>	<b>EN 60079-0:2006</b>	<b>EN 60079-1:2007</b>
<b>EN 60079-11:2007</b>	<b>EN 60079-26:2007</b>	<b>EN 61241-0:2006</b>
<b>EN 61241-1:2004</b>	<b>EN 61241-11:2006</b>	
- (10) If the sign «X» is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This examination certificate relates only to design and construction of the specified equipment in accordance to the directive 94/9/EC. Further requirements of this directive apply to the manufacturing process and the placing on the market of the equipment.
- (12) The marking of the equipment shall include the following:

**see Appendix page 3: (19) Marking**

**Electrosuisse SEV**  
Certification Body ATEX

Fehraltorf, 2009-08-19

Martin Plüss  
Product Certification

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(13)

## Appendix

(14)

### EC-Type Examination Certificate SEV 09 ATEX 0133 X

(15) Description of the equipment

Rigid, flexible and tubular probes type series S\*\*, K\*\*, F\*\* and TSS with mounted or separate impedance measuring electronics type MTI \*\*\*/\*\* used in conjunction with the microprocessor control unit "mipromex®" type M\*\* \*\*\*\*\* (SEV 09 ATEX 0132) for measuring signals for limiting values, levels, separating layers and for analysis in potentially explosive atmospheres.

Variants with integrated temperature sensor and associated measuring transmitter as well as use as a deadman's hand-held probe or hand lever probe is possible.

Ratings according to test report.

(16) Test Report

08-IK-0395.01

(17) Special conditions for safe use

1. According to RL 94/9/EC (ATEX 95) Appendix I, the rigid, flexible and tubular probe type series S\*\*, K\*\*, F\*\* and TSS with mounted or separate impedance measuring electronics type MTI \*\*\*/\*\* according to type code is a device of equipment group II, category 2G which, according to RL 99/92/EC (ATEX 137) can be used in zones 1 and 2 as well as gas groups IIA, IIB and IIC, which are potentially explosive due to combustible substances in the temperature classes T1 to T6.  
For use/installation, the requirements of EN 60079-14 must be observed.
2. According to RL 94/9/EC (ATEX 95) Appendix I, the rigid, flexible and tubular probe type series S\*\*, K\*\*, F\*\* and TSS with mounted or separate impedance measuring electronics type MTI \*\*\*/\*\* according to type code is a device of equipment group II, category 2D which, according to RL 99/92/EC (ATEX 137) can be used in zones 21 and 22 in the presence of combustible dusts.  
For use/installation, the requirements of EN 61241-14 must be observed.
3. According to RL 94/9/EC (ATEX 95) Appendix I, only the medium contacted part of the rigid, flexible and tubular probe type series S\*\*, K\*\*, F\*\* and TSS according to type code is a device of equipment group II, category 1G or category 1D which, according to RL 99/92/EC (ATEX 137) can be used in zone 0 or 20.
4. The medium contacted parts of the rigid, flexible and tubular probe type series S\*\*, K\*\*, F\*\* and TSS according to type code with coating of an insulating material (surface resistance > 1 GΩ) can be used without restriction only for combustible substances in gas groups IIA or IIB. For substances in gas group IIC, the coating must be either conductive (surface resistance < 1 GΩ) or have a coating thickness of maximum 0.2 mm.
5. The variants for use as a deadman's hand-held probe or hand lever probe may only be used in gas groups IIA and IIB.
6. The permissible ambient temperature range for the connecting or measuring transducer part of the rigid, flexible and tubular probe type series S\*\*, K\*\*, F\*\* and TSS according to type code is -20°C to +60°C.
7. The permissible medium temperature for the measuring part of the rigid, flexible and tubular probe type series S\*\*, K\*\*, F\*\* and TSS according to type code must be defined for the selected type (with or without heatsink, dimensions, etc.), so that the requirements of the above code are fulfilled. This verification or relevant information must be added to the operating instructions of each variant.

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8. As the probe circuit is operationally earthed, a common equipotential bond must exist throughout the wiring run of the probe circuit and supply and signal circuit (within and outside potentially explosive area).
9. When using the variant with integrated temperature sensor and associated measuring transmitter, temperature measuring transducer WIKA type 32.1\*. \*\*2 (DMT 98 ATEX E 007 X), the permissible medium temperature or temperature within the area of the measuring part must be minimum 10 K below the ignition temperature or temperature class of the used combustible materials.


(18) Fundamental essential health and safety requirements

Fulfilled by the standards applied

(19) Marking

The marking of the equipment shall include the following:


Rigid, flexible and tubular probe type series S\*\*, K\*\*, F\*\* and TSS with mounted or separate impedance measuring electronics type MTI \*\*\*/\*\* according to type key:

	II 1/2G	Ex ia IIC T6	and/or
	II 1/2D	Ex iaD 20/21 IP65 T85°C	

or

	II 1/2G	Ex d ia IIC T6	and/or
	II 1/2D	Ex iaD tD A20/21 IP65 T85°C	

Separate impedance measuring electronics type MTI \*\*\*/\*\*.

	II 2G	Ex ia IIC T6	and/or
	II 2D	Ex iaD 21 IP65 T85°C	

Variants for use as a deadman's hand-held probe or hand lever probe:

	II 2G	Ex ia IIB T6
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**Electrosuisse SEV**  
Certification Body ATEX

Fehraltorf, 2009-08-19

Martin Plüss  
Product Certification



## Electrosuisse SEV 09 | Test report (german only) | Impedance probes

SEV Verband für Elektro-, Energie- und Informationstechnik

electrosuisse **Prüfbericht Ref. 08-IK-0395.01**

Aquasant-Messtechnik AG, Hauptstrasse 22, CH-4416 Bubendorf

**Beschreibung**

Die Stab-, Seil- und Rohrsonde der Typreihen S\*\*, K\*\*, F\*\* und TSS mit aufgebauter oder separater Impedanz-Messelektronik Typ MTI \*\*\*/\* dient, in Verbindung mit dem Mikroprozessor-Steuergerät "mipromex®" Typ M\*\* \*\*\*\* \* (SEV 09 ATEX 0132), der Signalerfassung für Grenzwert, Füllstand, Trennschicht und Analytik im explosionsgefährdeten Bereich.

Ausführungsvarianten mit eingebautem Temperaturfühler und zugehörigem Messtransmitter sowie zur Verwendung als Totmannhandsonde bzw. Handhebelsonde sind möglich.

**Typenbezeichnung**

Die Sterne in der Typenbezeichnung werden gemäss Typenschlüssel, siehe separates Dokument der Prüfungsunterlagen des Herstellers, durch Kennzeichen von Varianten ersetzt, welche keinen Einfluss auf den Explosionsschutz und die allgemeine Sicherheit haben.

**Bemessungsdaten**

Stab- und Seilsonde Typenreihen S\*M, K\*M, F\*M  
Rohrsonde Typ TSS\*\*\*\*\*FIX\*  
separate Impedanz-Messelektronik Typ MTI \*\*\*/\*

Impedanz-Messsignal- und Versorgungsstromkreis  
(Klemmen 1 und 2)

in Zündschutzart Eigensicherheit Ex ia IIC  
nur zum Anschluss an den Signal- und Versorgungsstromkreis des Mikroprozessor-Steuergerät "mipromex®" Typ M\*\* \*\*\*\* \* (SEV 09 ATEX 0132) oder an einen bescheinigten eigensicheren Stromkreis mit folgenden Ausgangs-Höchstwerten:

$$U_i \leq 18.9 \text{ V}$$

$$I_i \leq 49 \text{ mA}$$

$$P_i \leq 231 \text{ mW}$$

Wirksame innere Kapazität  $C_i = 60 \text{ nF}$   
Wirksame innere Induktivität  $L_i = 0 \text{ mH}$

**Prüfbericht Ref. 08-IK-0395.01**

Aquasant-Messtechnik AG, Hauptstrasse 22, CH-4416 Bubendorf

Impedanz-Messsignal- und Versorgungsstromkreis  
(Klemmenleisten X5 und X6)

in Zündschutzarten druckfeste Kapselung  
und Eigensicherheit Ex d ia IIC

nur zum Anschluss an den Signal- und Versorgungsstromkreis des Mikroprozessor-Steuergerät "mipromex®" Typ M\*\* \*\*\*\* \* (SEV 09 ATEX 0132) mit folgenden Ausgangs-Höchstwerten:

$$U \leq 19.3 \text{ V}$$

$$I \leq 75 \text{ mA}$$

Temperatur-Messsignal- und Versorgungsstromkreis  
(Klemmen + und -)

in Zündschutzart Eigensicherheit Ex ia IIC

nur zum Anschluss an einen bescheinigten eigensicheren Stromkreis, zum Beispiel:

Höchstwerte für Temperaturmessumformer WIKA Typ 32.1\*.\*2 (DMT 98 ATEX E 007 X):

$$U_i \leq 30 \text{ V}$$

$$I_i \leq 130 \text{ mA}$$

$$P_i \leq 800 \text{ mW}$$

Wirksame innere Kapazität  $C_i = 7.8 \text{ nF}$   
Wirksame innere Induktivität  $L_i = 0.1 \text{ mH}$

- Diese Werte dienen nur zur Information. Die verbindlichen Angaben sind der Betriebsanleitung des bescheinigten Temperaturmessumformers zu entnehmen.

Stab- und Seilsonde Typenreihen S\*K, K\*K, F\*K  
Rohrsonde Typ TSS\*\*\*\*\* \*

Sondenstromkreis  
(Koaxialanschluss)

in Zündschutzart Eigensicherheit Ex ia IIC

nur zum Anschluss an die separate Impedanz-Messelektronik Typ MTI \*\*\*/\*.

Höchstwerte:

HF-Anschlusskabel und Sonde

Wirksame innere Kapazität  $C_i = 2 \text{ nF}$   
Wirksame innere Induktivität  $L_i = 0 \text{ mH}$



## Application QT1820K and mipromex overview Type M\*\* \*\*\*\*

**Interface** Detection of two immiscible liquids.

### QT1820K:

For product-compensated interface level measurement in the separator.

### MIQ / MIL:

Batch separation or continuous interface level measurement,

### Level: MLT

Level measurement for various applications (product compensated for process level measurement); for organic to aqueous liquids, foams or powders

### Level Switch: MLS

Full/empty or limit level indication for organic to aqueous liquids, foams or powders with smallest bulk densities

### Leakage Monitoring: MPR

Leakage monitoring in laboratory or miniplant for organic or aqueous liquids

### Process/Product Monitoring: MAT

Product monitoring and identification, of organic products

Benefit from our many years of experience and request a quote.

