DNV·GL

Certificate No:
TAA000005K

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Chlorine and TRO Monitor

with type designation(s)
CLX-Ex, CLX-Ex2 with Air Sentinel

Issued to
HF scientific, Inc.
Fort Myers, United States

is found to comply with
DNV GL rules for classification – Ships and offshore units
USCG Federal Register 46 CFR part 162, subpart 162.060-30

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Location classes:

Temperature	**C (See application limitation)**
Humidity	**B**
Vibration	**A**
EMC	**A**
Enclosure	**B / IP56**

This Certificate is valid until **2020-11-12**.

Issued at **Høvik** on **2015-11-13**

for **DNV GL**

DNV GL local station: **Miami**

Approval Engineer: **Siri Tag**

Odd Magne Nesvåg
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Job Id: **262.1-019913-1**
Certificate No: **TAA000005K**

Product description

TRO CLX-Ex/Ex2 Online Chlorine monitor allows for the reading of chlorine levels of process water on-line. The CLX-Ex/Ex2 uses a 515 nm LED as the measurement light source. This instrument has been designed to operate in explosive atmospheres and meets the IECEx rating as stated in the specifications.

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Measures to be provided for operation below 0°C to avoid freezing of water.

Ex installations to be approved in each case according to the Rules and Ex-Certification**/** Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

Ex-certification is not covered by this certificate and the following paragraph, which is for information only, is based on information received from the manufacturer, but not verified by DNV GL.

Information on Ex-Certification received from manufacturer – Not verified by DNV GL		
Equipment	Certified	Certificate No.
CLX-Ex Model 28031	Ex px IIC T4 Gb 0°C ≤ Ta ≤ 55°C	IECEx LC 14.0005 issue No.:1
CLX-Ex2 Model 28034	Ex px IIC T4 Gb 0°C ≤ Ta ≤ 55°C	IECEx LC 14.0006 issue No.:1

Type Approval documentation

Tests carried out

Applicable tests according to:
Standard for Certification No. 2.4, April 2006.
USCG Federal Register 46 CFR part 162, subpart 162.060-30.

Marking of product

Name of maker: "HF scientific"
Unit type: CLX-Ex/CLX-Ex2 TRO MONITOR
Serial number
Supply voltage: 100-240 VAC
Supply frequency: 47-63 Hz
Supply current: 250 VA

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE