DNV·GL

Certificate No:
TAA00001VK

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Measurement Converter

with type designation(s)
Discrete I/O Control DIO, Thermocouple Temp. Scanner TC20, RTD Temperature Scanner RTD8

Issued to
Axiomatic Technologies Corporation
Mississauga, ON, Canada

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

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

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Discrete I/O Control DIO	**B**	**B**	**A**	**A**	**C**
Thermocouple Temp. Scanner TC20	**B**	**B**	**A**	**A**	**C**
RTD Temperature Scanner RTD8	**B**	**B**	**A**	**A**	**C**

Issued at **Hamburg** on **2018-05-29**
This Certificate is valid until **2023-05-28**.
DNV GL local station: **Montreal**

Approval Engineer: **Jens Dietrich**

for **DNV GL**

Joannis Papanuskas
Head of Section

Job Id: **262.1-028510-1**
Certificate No: **TAA00001VK**

Product description

Product	Type	Product Nos. (aliases)
Thermocouple Temperature Scanner -20 channels for **T**hermo **C**ouples type B, E, J, K, N, R, S or T -Scan rate: 100ms per channel -Accuracy +/-1° (Cold jct. comp.).	TC20	234-1644, AXTC20, AXTC20CO, 1006454, AXTC20-07, AXTC20-08, AXTC20-01 or AXTC20-04
Discrete I/O Control Module -12 Digital Inputs, 8 Relay Outputs. -Relay contact output rating: 2A@277VAC, 2A@30VDC (Ohmic).	DIO	234-0275, AXDIO128, AXDIO128CO or AXDIO128-03
RTD Temperature Scanner -8 channels, configurable individually 2-, 3-, or 4-wire connection -Scan rate: 100ms per channel -Accuracy +/-1°.	RTD8	234-1645, AXRTD8, AXRTD8CO or AXRTD8-03

Interfaces: RS232, CAN SAE J1939, CANopen (CO models). IP56; Supply Voltage: 9...32V DC.

Approval conditions
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, by inclusion in an instrument list. Reference is made to DNV GL Rules for Ships Pt.4 Ch.9, Control and Monitoring Systems. Installation instructions to be observed.

Tests carried out
Applicable tests according to Class Guideleine CG-0339, November 2016.

Marking of product
Supplier name, type designation, power supply, plug pin assignment, serial number.

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 after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of this certificate.

END OF CERTIFICATE