TYPE APPROVAL CERTIFICATE
No. **ELE323823CS**

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

Description	**Distributed I/O Modules**
Type	**Digital I/O module:** **AXDIO128: AXDIO128CO, AX031800** **(Cat. ID Code 234-0275-04)** **(Cat. ID Code 605-1984-00)** **RTD Scanner module:** **AXRTD8: AXRTD8CO, AX180300** **(Cat. ID. cod. 234-1645-08)** **(Cat. ID. cod. 606-7496-00)** **Thermocouple Scanner module:** **AXTC20: AXTC20CO, AX185000** **(Cat. ID cod. 234-1644-06)** **(Cat. ID cod. 605-1986-02)**
Applicant	**AXIOMATIC TECHNOLOGIES CORPORATION** **1445 Courtneypark Drive E.** **L5T 2E3 Mississauga (Ontario)** **CANADA**
Manufacturer *Place of manufacture*	**AXIOMATIC TECHNOLOGIES CORPORATION** **1445 Courtneypark Drive E.** **L5T 2E3 Mississauga (Ontario)** **CANADA**
Reference standards	**Rules for the Classification of Ships - Part C - Machinery, Systems and fire protection - Ch.3, Sect.6, Tab.1.**

Issued in **Genoa** on **October 23, 2023**. *This Certificate is valid until* **October 22, 2028**

RINA Services S.p.A.
Luigi Benedetti

This certificate consists of this page and 1 enclosure

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Digitally signed by RINA Services S.p.A. on 23 Oct 2023. No handwritten signature is provided.

TYPE APPROVAL CERTIFICATE
No. **ELE323823CS**
Enclosure - Page 1 of 1
Digital I/O module:
AXDIO128: AXDIO128CO, AX031800
(Cat. ID Code 234-0275-04)
(Cat. ID Code 605-1984-00)
RTD Scanner module:
AXRTD8: AXRTD8CO, AX180300
(Cat. ID. cod. 234-1645-08)
(Cat. ID. cod. 606-7496-00)
Thermocouple Scanner module:
AXTC20: AXTC20CO, AX185000
(Cat. ID cod. 234-1644-06)
(Cat. ID cod. 605-1986-02)

General Description:

Acquisition modules in a CAN Network

Digital I/O modules:

AXDIO 128, AX031800 (SAE J1939) ; AXDIO 128CO (CANopen) ;
- 234-0275-04 (SAE J1939) - CAT ID Code
- 605-1984-00 (SAE J1939) - CAT ID Code
Nominal Power supply: 12 / 24Vdc (9 to 32Vdc)
Up to 12 active-low digital inputs with pull-up resistors and 8 relay outputs
The DIO is designed to work either as a stand-alone module, or on CAN network
Power supply , digital inputs and power supply are isolated each other
Provided Isolation: between I/O, power supply, CAN, Protective Ground
I/O wiring: Shielded cable is required
CAN 2.0 A-B port: Shielded CAN cable is required
Mechanical protection: IP56 (IEC 60529)

RTD Scanner modules;
AXRTD8, AX180300 (SAE J1939) ; AXRTD8CO (CANopen);
- 234-1645-08 (SAE J1939) – CAT ID code
- 606-7496-00 (SAE J1939) – CAT ID code
Nominal Power supply: 12 / 24Vdc (9 to 32Vdc)
Up to Eight channels independently configurable for 2, 3or 4 wire RTDs (support Std. IEC , JIS, US, Legacy, Sama)
Input range: 10 to 350 Ohms
Each RTD channel could be configured to send diagnostic messages to the network if temperature goes out of range.
Functions associated with each RTD channel:
H.T. Shut-down; H.T. / L.T. warning; RTD Open / Short circuit warning; Frozen data detection.
Provided Isolation: between Input, power supply, CAN, Protective Ground
RTD input wiring : Shielded cable is required
CAN 2.0B port: Shielded cable is required
Mechanical protection: IP56 (IEC 60529)

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Thermocouple Scanner modules:
AXTC20 (SAE J1939) ; AXTC20CO (CANopen) ;
- 234-1644-06 (SAE J1939) – CAT ID code
- 605-1986-02 (SAE J1939) – CAT ID code

Nominal Power supply: 12 / 24Vdc (9 to 32Vdc)
Up to 20 channels , independently configurable for B, E, J, K, N, R, S, T
Input range:
B= 0 to 13.82 mV, E= -9.835 to 76.373mV, J= -8.095 to 69.553mV, K= -6.458 to 54.886 mV,
N= -4.345 to 47.513mV, R= -0.226 to 21.101mV, S= -0.236 to 18.693, T= -6.258 to 20.872
Each T/C channel could be configured to send diagnostic messages to the network if temperature goes out of range.
Functions associated with each T/C channel:
H.T. Shut-down; H.T. / L.T. warning; T/C Open circuit warning; Frozen data detection.
Provided Isolation: between Input, power supply, CAN, Protective Ground
T/C input wiring: Shielded cable is required
CAN 2.0B port: Shielded cable is required
Mechanical protection: IP67 (IEC 60529)

AXIOMATIC **Specifications:**

User Manual UMAXDIO128 ver 3.0.0 _ Discrete Input/Output , SAE J1939 - 12 Digital Inputs, 8 Relay Outputs
User Manual UMAXDIO128CO ver 2.0.0 _ 12 Digital Input, 8 Relay Output Controller with CANopen

User Manual UMAXRTD8 ver 3.1.1 _ RTD Scanner , Eight Channel with CAN , SAE J1939
User Manual UMAXRTD8CO ver 3.1.1 _ RTD Scanner , Eight Channel with CANopen

User Manual UMAXTC20_ Thermocouple Scanner, Twenty Channel with CAN, SAE J1939
User Manual UMAXTC20CO_ Thermocouple Scanner, Twenty Channel with CANopen

605-1984-EC00 User Manual version 1.0.2 - (July 24, 2023)
605-7496-EC00-User Manual version 1.0.1 - (July 24, 2023)
605-1896-EC00- User Manual version 1.0.1 - (July 24, 2023)

ELITE **Test Reports:**
n. 1201614-01 (13 September 2012) Environmental tests RTD _T/C_DIO
n. 1201612-01 (18 September 2012) Thermocouple Module - EMC tests_
n. 1201612-02 (18 September 2012) RTD Module - EMC tests
n. 1201612-03 (18 September 2012) Discrete I/O module - EMC tests
n. 2203471-01 Rev.A (22 February 2022) - Electrical and EMC compatibility Test (RTD Module)
n. 2203471-02 Rev.A (24 February 2022) - Electrical and EMC compatibility Test (Thermocouple Module)
n. 2203471-03 Rev.A (22 February 2022) - Electrical and EMC compatibility Test (DIO Module)
n. 2203472-01 Rev.A (18 November 2022) - Environmental Tests

TUV **Test Report:**
n. 7169010216-001 (22 April 2022) Humidity & Protection degree

UL **Test Report:**
n. 247103 (30 June 2022)
n. E247103-20220630 (01 July 2022) & Certificate of Compliance

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Installation remarks:

Protective Earth must be connected to the module's earthing lug.
Installation in *hazardous area* is to be in compliance with the relevant Ex Safety certificate requirements
Fail to Safe operation will be evaluated on a case by case bases, according to the specific application.

Verification of Accuracy in accordance to manufacturer specification (in the Standard atmosphere condition) is not part of this approval.

Reference documents

TAO-APP dated 22/01/2023
Offer 2023/17199 dated 03/07/2023
The documents above-mentioned have been archived in the Leonardo Draw Plus portal under the project:
https://leodrawplus.rina.org/projects/38086/detail

Genoa October 23, 2023

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