DNV·GL

Certificate No:
TAA00000DF

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
AXIOLINE Modules

Issued to
Phoenix Contact GmbH & Co. KG
Blomberg, Germany

is found to comply with
DNV GL rules for classification – Ships

Application :

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

Temperature	**D**
Humidity	**B**
Vibration	**B**
EMC	**B**
Enclosure	**Required protection according to the Rules shall be provided upon installation on board**

This Certificate is valid until **2019-04-13**.

Issued at **Hamburg** on **2016-04-05**

for **DNV GL**

DNV GL local station: **Magdeburg**

Approval Engineer: **Heinz Scheffler**

Duy Nam Le
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.

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Product description

Article	Type	Description
2688022	AXL F DI16/4 2F	Axioline digital input module, 16 inputs, 24 V DC, 2, 3 or 4-wire connection method
2701224	AXL F DI16/4 XC 2F	
2688035	AXL F DI32/1 1F	Axioline digital input module, 32 inputs, 24 V DC, 1-wire connection method
2701226	AXL F DI32/1 XC 1F	
2688048	AXL F DO16/3 2F	Axioline digital output module, 16 outputs, 24 V DC, 500 mA, 2-, 3-wire connection method
2701228	AXL F DO16/3 XC 2F	
2688051	AXL F DO32/1 1F	Axioline digital output module, 32 outputs, 24 V DC, 500 mA, 1-wire connection method
2701230	AXL F DO32/1 XC 1F	
2688064	AXL F AI8 1F	Axioline analog input module, 8 inputs, 2-wire connection method
2701232	AXL F AI8 XC 1F	
2688077	AXL F RTD8 1F	Axioline temperature module, 8 inputs for the connection of resistance temperature detectors (RTD)
2701235	AXL F RTD8 XC 1F	
2688080	AXL F AO8 1F	Axioline analog output module, 8 outputs, 2-wire connection method
2701237	AXL F AO8 XC 1F	
2688093	AXL F CNT2 INC2 1F	Axioline special function module, 2 counter inputs, 2 incremental encoder inputs
2701239	AXL F CNT2 INC2 XC 1F	
2688459	AXL F BK ETH	Axioline F bus coupler for Ethernet
2701949	AXL F BK ETH XC	
2701815	AXL F BK PN	
2701222	AXL F BK PN XC	
2688491	AXL F AI4 I 1H	Axioline F analog input module, 4 current inputs, integrated sensor supply
2702007	AXL F AI4 I XC 1H	
2688501	AXL F AI4 U 1H	Axioline F analog input module, 4 voltage inputs, integrated sensor supply
2702008	AXL F AI4 U XC 1H	
2688666	AXL F RS UNI 1H	Axioline F communication module for serial data transmission, 1 interface can be parameterized as RS-485/RS-422 or RS-232
2702006	AXL F RS UNI XC 1H	
2700988	AXC 1050	Controller for Axioline
2701295	AXC 1050/XC	
2701916	AXL F DI8/1 DO8/1 1H	Axioline F digital input and output module, 8 inputs, 24 V DC, 8 outputs, 24 V DC, 500 mA, single-conductor connection technology
2702017	AXL F DI8/1 DO8/1 XC 1H	
2702177	AXL F BK ETH NET2	Axioline F bus coupler for Ethernet for operation in two separate networks
2701686	AXL F BK S3	Axioline F bus coupler for Sercos

XC: Partly coated printed boards

Compass safe distances: Standard compass: 45cm, Steering compass: 30cm

Place of manufacture

Phoenix Contact Electronics GmbH
Dringenauer Strasse 30
31812 Bad Pyrmont
Germany

Application/Limitation

To fulfill the EMC limits for bridge and open deck zone, filter ME-MAX/NEF/QUINT20A or equivalent must be connected in the power line.

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, 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 Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems

Type Approval documentation

Documents :

Type:	Datasheet:	Manual:
AXL DI 16/4 (-ME)	7987_en_02	MNR 9049638-02
AXL DI 32/1 (-ME)	8020_en_02	MNR 9049639-02
AXL DO 16/3 (-ME)	7988_en_01	MNR 9049640-02
AXL DO 32/1 (-ME)	8124_en_00	MNR 9049641-01
AXL AI 8 (-ME)	989_de_02c01	MNR 9049642-02
AXL RTD 8 (-ME)	7991_en_03	MNR 9049643-02
AXL AO 8 (-ME)	7990_en_02	MNR 9049644-02
AXL CNT 2/INC 2 (-ME)	7993_en_01	MNR 9049645-01
AXL F BK ETH	8515_en_04	9060529 – 00
AXL F AI4 I 1H	8658_en_01	MNR 9060859-01
AXL F AI4U1H	8659_en_01	MNR 9060860-01
AXL F RS UNI 1H	8533_en_02	MNR 9060313-00
AXC 1050/XC	--	MNR 9061087-01
AXL F DI8/1 DO8/1 1H	8670_en_01	MNR 9062394-00
AXL F BK ETH NET2	106080_en_00	--
AXL F BK PN/XC	105731_en_00	--
AXL F BK S3	105610_en_02	--

Test Reports:

E132617E1 dated 2013-11-11;
E132617E2 dated 2013-11-11;
U132617E1 2nd version dated 2013-11-25;
U132617E2 2nd version dated 2013-11-25;
ADR150085 dated 24.02.2016;
ADR150098 dated 05.01.2016;
N11-09071 Rev.2 dated 27.08.2012;
Certificate no. 840, dated 2013-11-14.

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2015.
For the bridge mounted components the 'Compass safe distance' was measured according to section 11.2 of IEC 60945 4th edition (2002).

Marking of product

The products to be marked with:

- model name
- manufacturer name
- 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 at least every second year and at renewal of this certificate.

END OF CERTIFICATE