

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Peripheral Equipment**

with type designation(s)

Series 600 PD 6xx modules, PD 527, PD 528,**Series 800 PD 8xx modules,****Series 900 PD 9xx modules**

Issued to

Emerson Automation Solutions, Damcos A/S
Næstved, Sjælland, Denmark

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.****Location classes:**

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Series 600	D	B	B	B	Required protection according to relevant rules shall be provided upon installation on board
Series 800	D	B	A	B	
Series 900	D	B	A	B	

Issued at **Høvik** on **2018-09-12**This Certificate is valid until **2023-06-30**.for **DNV GL**DNV GL local station: **Copenhagen**Approval Engineer: **Ståle Sneen**

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.



Product description

Series 600 PD 6xx interface modules, covering the following:

- PD 600/ BM002 RS485 P-net interface
- PD 600/ BM010 RS485 P-net interface
- PD 601/ BM011 RS232 P-net interface
- PD 601/ BM003 RS232 P-net interface
- PD 602/ BM016 Ethernet interface
- PD 620/ BM008 4 ch. digital I/O
- PD 620/ BM014 4 ch. digital I/O
- PD 621/ BM004 6 ch. digital I/O
- PD 621/ BM005 6 ch. digital I/O
- PD 621/ BM006 6 ch. digital I/O
- PD 622/ BM005 6 ch. digital input
- PD 625/ BM009 Valve control module
- PD 640/ BM014 4 ch. analog input
- PD 641/ BM013 3 ch. analog input
- PD 642/ BM014 4 ch. analog input
- PD 644/ BM005 6 ch. Analog I/O with HART
- PD 661/ BM012 SPI-RS485
- PD 661/ BM010 SPI-RS485
- PD 662/ BM010 RPI-RS485
- PD 663/ BM010 Simple P-NET Interface Triple Speed
- PD 667/ BM002 Profibus DP-V0 Essential Features Master passive
- PD 527/ BM015 Valve Control Module
- PD 528/ BM014 Tank Gauging Module

Series 800 PD 8xx interface modules, covering the following:

- PD 820/ BM104 15 ch. digital I/O
- PD 820/ BM105 9 ch. digital I/O and 6 ch. relay outputs
- PD 821/ BM104 15 ch. digital inputs
- PD 840/ BM104 15 ch. analog input
- PD 850/ BM104 12 ch. analog / digital I/O
- PD 850/ BM101 12 ch. analog / digital I/O and 4 ch. relay outputs

Series 900 PD 9xx interface modules, covering the following:

- PD 947 GPS Navigation Receiver with RS-485 and ETH

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. Reference is made to DNV GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After certification the clause for software control will be put into force.

Software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV GL for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

Application/Limitation

The GPS Navigation Receiver PD 947 has not been assessed for use in navigational- or position reference systems required by the rules.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.
Series 800 and series 900 have additionally been verified against applicable tests for protected equipment according to IEC 60945, 4th edition (2002).

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

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 the certificate.

END OF CERTIFICATE