



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-12142**

This is to certify that the
Programmable Electronic System

with type designation(s)
SBC PLC type PCD3 M90

Manufactured by
Saia-Burgess Controls AG
MURTEN, Switzerland

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application
Location classes:

| | |
|--------------------|--|
| Temperature | C |
| Humidity | B |
| Vibration | A |
| EMC | B |
| Enclosure | Required protection according to DNV Rules shall be provided upon installation on board |

Høvik, 2011-01-19
for **Det Norske Veritas AS**

This Certificate is valid until
2015-06-30

Odd Magne Nesvåg
Head of Section

DNV local office:
Essen

Aleksandra Górowska
Surveyor

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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

PCD3.M90 is a PLC controller that consists of:

- PCD3.M90 CPU board with
 - 1 MB SRAM,
 - 1 MB onboard flash file system,
 - 1x Ethernet TCP/IP,
 - 1x RS485 and
- specific I/O board with
 - 1x RS 232,
 - 1x RS 485,
 - 1x Slot for PCD7.F1xx module,
 - 1x Slot M1 for Flash memory module PCD7.R5xx,
 - 1x Slot M2 for SD card memory PCD7.R-SD up to 512 MB,
 - Battery Renata CR2032 Lithium 3V & supervision,
 - 10 digital inputs, 5 digital inputs also configurable as analogue inputs 0 – 10 V,
 - 12 relay outputs 250VAC, 4A (4 of them with change over contact, 3 connectors),
 - 8 digital outputs,
 - 8 analogue inputs 12Bit, 0...10V / 0...20 mA / PT / NI1000 / NTC10, selectable per channel with jumpers,
 - 8 analogues outputs 12Bit, 0-10V;
 - and 1x I/O Extension module connector.

The customer-specific systems may be identified following the generic keying as shown:

PCD3.M90

followed by three alpha-numeric characters (Indication of customer),

followed by three numbers (Indication of customer variant, operating system)

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.

Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer of the application system according to an approved test program before the system is shipped to the yard. After the certification the clause for application software control will be put into force.

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Type Approval documentation

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

Certificate Retention Survey

The scope of the retention/renewal survey 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 survey 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

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE