



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. A-10169
This Certificate consists of 4 pages

This is to certify that the
Peripheral Equipment
with type designation(s)

D1000

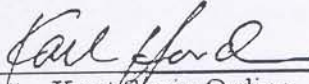
Manufactured by
G.M. International Srl
VILLASANTA MI, Italy

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

Application

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


Place and date
Høvik, 2006-11-23
for DET NORSKE VERITAS AS


Knut Svein Ording
Head of Section



Local Office
DNV Milan

This Certificate is valid until
2008-12-31


Geir Bjørn Alnes
Surveyor

Notice: 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.



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File No.: 899.60

Product description

Intrinsically safe isolators D1000 series as listed below.

Analog Input:

- D1010S/D Single/Double Channel Repeater Power Supply, Smart Compatible
- D1012Q Quad Channel Repeater Power Supply.
- D1014S/D Single/Double Channel Repeater Power Supply, HART Compatible,
- D1054S Single Channel Repeater Power Supply, HART Compatible and Double Trip Amplifier.

Analog Output:

- D1020S/D Single/Double Channel Isolating Driver, Smart Compatible
- D1021S Single Channel Isolating Driver, Smart Compatible,
- D1022D Dual Channel Fire/Smoke Detector Interface, Loop Powered,

Digital Input:

- D1030S/D Single/Double Channel Switch/Proximity Detector Repeater Relay Output.
- D1130S/D Single/Double Channel Switch/Proximity Detector Repeater Relay Output.
- D1031D/Q Dual/Quad Channel Switch/Proximity Detector Repeater Transistor Output.
- D1032D/Q Dual/Quad Channel Switch/Proximity Detector Repeater Relay Output
- D1033D/Q Dual/Quad Channel Switch/Proximity Detector Repeater Transistor Output
- D1034S/D Single/Dual Channel Switch/Proximity Detector Repeater Current Output

Digital Output:

- D1040-2-3Q Quad Channel Solenoid Driver, Loop/Bus Powered

Power Supply:

- PSD1000 Single channel AC input, 24 V dc, 600 mA output.
- PSD1001C Single Channel 10 Vdc, 160 mA out,
- PSD1004 Single Channel 5 Vdc, 160 mA out.

Signal Converter & Trip Amplifier:

- D1052S/D Single/Dual Channel Analog Signal Converter.
- D1053S Single Channel Analog Signal Converter and Trip Amplifier.
- D1060S Single Channel Frequency Pulse Converter Repeater and Trip Amplifier.
- D1061S Single Channel RS422/RS485 Fieldbus Isolating Repeater.
- D1063S Single Channel Strain Gauge Bridge Isolating Repeater.



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Temperature Converter & Trip Amplifier:

D1072S/D Single/Dual Channel Temperature / Tx Potentiometer Converter
D1073S Single Channel Temperature / Tx Potentiometer Converter and Trip Amplifier.

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

Product Catalogue, Intrinsically Safe Instrumentation for Hazardous Areas
DNV technical report No. 2006-3120 rev.02 dated 2006-03-21 including additional emission test dated 2006-10-09
Nemko Test report 57399 TRFEMC dated 2006-01-12

Tests carried out

Applicable tests according to Standard for Certification No. 2.4

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.



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- 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.

Survey is to be performed at renewal of this certificate.

END OF CERTIFICATE