DNV·GL

Certificate No:
TAA000005A

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Programmable Electronic System

with type designation(s)
Valmet DNA System, ACN I/O

Issued to
Valmet Automation Inc.
Espoo, Finland

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

Application :

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

Location classes:

Temperature	**B**
Humidity	**B**
Vibration	**A**
EMC	**B (See Limitations)**
Enclosure	**Required protection according to the rules shall be provided upon installation on board**

This Certificate is valid until **2020-06-30**.

Issued at **Høvik** on **2015-11-04**

for **DNV GL**

DNV GL local station: **Turku**

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.

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Product description

ACN I/O including the following modules:

Item	Trade Code	Description
IPS	D201139	I/O power supply
IBC	D201138	I/O bus controller
MBB	D201379	IBC/IPS mounting base
MBR	D201380	IBC/IPS mounting base for redundancy
DI8U	D201128	Digital input unit, universal
DI8N	D201127	Digital input unit, NPN type input
DI8P	D201126	Digital input unit, PNP type input
DI8M	D201239	Digital input unit with field circuit monitoring
DO8N	D201130	Digital output unit, NPN type output
DO8P	D201129	Digital output unit, PNP type output
DO8SO	D201133	Digital output unit, solid state relay
DO8RC	D201132	Digital output unit, NC relay contact
DO8RO	D201131	Digital output unit, NO relay contact
AI8C	D201134	Analog input unit, 20 mA
AI8V	D201135	Analog input unit, 10 V
AO4C	D201136	Analog output unit, 20 mA
AO4V	D201137	Analog output unit, 10 V
AO4DV	D201342	Analog output unit, ±10 V
AO4H	D201190	Analog output unit, 0..20 mA output, HART
TI4W3	D201159	Temperature input unit, Pt100, 3 wire
TI4W4	D201171	Temperature input unit, Pt100, 4 wire
MB8	D201376	I/O mounting base for 8 units
MB2	D201373	I/O mounting base for 2 units
FCS	S446105	Field connection for 2 I/O units with spring terminals
FCR	S446106	Field connection for 2 I/O units with screw terminals
IT	D201381	I/O bus terminator
CBT	D201148	I/O cabinet bus connector unit
RES	D201351	Empty slot cover
ACN SR1	D201291	Process controller
AI2B	D201572	Analog input unit, bridge measurement
FI4V	D201191	Frequency and pulse input unit, 24V
FI4S5	D201192	Frequency and pulse input unit, RS422 5V
FI4S24	D201193	Frequency and pulse input unit, RS422 24V
AI8H	D201189	Analog input unit, 20mA HART
AII8CN	D201472	Analog input unit, isolated inputs, external field power supply, 20mA
AII8C	D201473	Analog input unit, isolated inputs, field power supply from unit, 20mA
AII8V	D201474	Analog input unit, isolated inputs, 5V
AOI4C	D201477	Analog output unit, isolated outputs, 20mA
AII4H	D201475	Analog input unit, isolated inputs, 20mA HART
AOI4H	D202479	Analog output unit, isolated outputs, 20mA HART
TCI8	D201482	Temperature input unit, isolated inputs, thermo couple
TII4W3	D201480	Temperature input unit, isolated inputs, RTD, 3 wire
TII4W4	D201481	Temperature input unit, isolated inputs, RTD, 4 wire
DII8P24	D201466	Digital input unit, isolated PNP inputs, 24 VDC
DII8P44	D201467	Digital input unit, isolated PNP inputs, 48 VDC
DII4U125	D201468	Digital input unit, isolated inputs, 125 VDC
DII4U120	D201469	Digital input unit, isolated inputs, 120 VDC
DII4U240	D201470	Digital input unit, isolated inputs, 240 VDC
DOI4RO	D201471	Digital output unit, relay, NO contact
FII4	D201483	Frequency and pulse input unit, 24V
MBI8	D201485	I/O mounting base for 8 I/O units

AI8CN	D201736	Analog input unit, 20mA, external field power supply

Units added at renewal/extension 2011:

ACN I/O units, common

Item	Trade Code	Description
IPSP	D201832	MIO power supply

ACN I/O units, M80 series

Item	Trade Code	Description
MBM80	D201784	IPSP/IBC mounting base, M80 series
MBS80	D201785	Secondary mounting base, M80 series
DI16P	D201815	Digital input unit, PNP
DO16P	D201830	Digital output unit, PNP
FXIS	D201831	Field supply unit for DI16P, spring terminals
FXIW	D201849	Field supply unit for DI16P, wire wrap terminals
FXOS	D201841	Field supply common connection unit for DO16P, spring terminals
FXOW	D201850	Field supply common connection unit for DO16P, wire wrap terminals

ACN I/O units, M120 series

Item	Trade Code	Description
MBM120	D201962	IPSP/IBC mounting base, M120 series
MBS120	D201968	Secondary mounting base, M120 series
DII8U120	D201822	Digital input unit, isolated inputs, 120 VAC
DII8U240	D201823	Digital input unit, isolated inputs, 240 VAC
DOI8RO	D201834	Digital output unit, relay, NO contact
AIF8V	D201509	Fast analog input unit for analog sensors
AIF8T	D201510	Fast analog input unit for triggering sensors
IXR10	D201874	Cross connection board for M120 I/O units, screw terminals 10P
YXR8	D201737	Cross connection branching board for M120 DI/DO, screw terminals 8P
YXR10	D201875	Cross connection branching board for M120 DI/DO, screw terminals 10P
YXR16	D201750	Cross connection branching board for M120 I/O, screw terminals 16P
YXR16AI	D201765	Cross connection branching board for M120 AII4H, screw terminals 16P
YXR16AO	D201766	Cross connection branching board for M120 AOI4, screw terminals 16P

Listed products are also available with conformal coating. The trade code of a coated product has a suffix L, e.g. D201832L.
ACN I/O is to be used in connection with the ACN family of process control computers.

Place of manufacture

Valmet Automation Inc.
Tampere, Finland

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 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 GL for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Limitations
The units must be mounted inside a cabinet to protect against ESD during normal operation.
Schaffner general purpose EMI filter model FN 2060-6-06, FN 2060-10-06, FN 2060-16-06 or equivalent has to be applied to the power terminals to reduce the conducted emissions.

Type Approval documentation
Tests carried out
Applicable tests according to Standard for Certification No. 2.4, April 2006.
5g Bump test according to IEC 60068-2-29, test Eb (1987-03) or IEC60068-2-27, test Ea.

Marking of product
All products are marked with Manufacturer name (Valmet), Trade Code as listed in the Product description and a unique 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