DNV·GL

Certificate No:
TAA0000248

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Power Management, Generator Control-, Monitoring- and Protection System

with type designation(s)
InteliSys - NT and InteliGen - NT

Issued to
ComAp a.s.
Praha 7, Czech Republic

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Location classes can be found on pages 2 and 3.

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

Issued at **Hamburg** on **2018-12-05**
This Certificate is valid until **2023-12-04**.
DNV GL local station: **Prague**

Approval Engineer: **Jens Dietrich**

for **DNV GL**

Joannis Papanuskas
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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Job Id: **262.1-002274-5**
Certificate No: **TAA0000248**

Product description

NT InteliSys-NT, InteliGen-NT and InteliMains are flexible control, monitoring and protection systems with inbuilt solution from single generator unit up to complex Power Management System. Controllers can also manage genset, generator, shaft generator, electric motor, shore connection and bus tie breaker application etc. Control units are extendable by I/O extenison modules, communication modules and multiple HMI, extra control, protection logic can be provided via inbuilt PLC Editor function.

System hardware components		
HW type	**HW version**	**HW description**
IS-NTC-BB	2.0	Power generation control unit
IG-NT(C)-BB	2.0	Power generation control unit
IG-NT(C)-(LT)-(GC)	1.3	Power generation control unit
IM-NT-LT	1.3	Breaker control unit
IM-NT-GC	1.3	Breaker control unit
IM-NT(C)-BB	2.0	Breaker control unit
InteliVision 5 CAN Backlit	1.2	5,7” TFT Colour display
InteliVision 8 Marine	1.1	8” TFT Colour display
InteliVision 12TOEM	1.0	12,1” Colour multi touchscreen
I-AOUT8	1.1	8 analogue output interfaces
Inteli IO8/8	1.0	Extension unit
Inteli AIN8	1.0	Extension unit
Inteli AIN8TC	1.0	Extension unit
IS-AIN8	5.2	Extension unit
IS-AIN8TC	5.2	Extension unit
IS-BIN16/8	3.0	Extension unit
IGS-PTM	2.2	Extension unit
IGL-RA15	1.3	Remote Annunciator
I-CB (all types)	1.2	Communication unit for ECU
I-CR	1.2	CAN repeater
I-LB+	1.1	Communication bridge
IB-NT	2.0	Internet Bridge
I-RB16	1.0	Relay Board
I-RB8	1.0	Relay board
I-LBA	1.0	Low battery adapter
IG-MTU 2-1	2.2	Transformer Unit for galvanic separation
IG-MTU/MARINE	2.2	Transformer Unit for galvanic separation
IG-AVRi-Marine	1.1	AVR interface
IG-AVRi-TRANS-Marine	1.0	Power supply for IG-AVRi-Marine
IGS-LSM+PMS Dongle	1.0	HW key for enabling PMS and loadsharing function

System components location classes					
Hardware type	**Location classes**				
	Temperature	**Humidity**	**Vibration**	**EMC**	**Enclosure**
IS-NTC-BB	**B**	**B**	**B**	**A**	***)
IG-NT(C)-BB	**B**	**B**	**B**	**A**	***)
IG-NT(C)-(LT)-(GC)	**B**	**B**	**B**	**A**	***)
IM-NT-LT	**B**	**B**	**B**	**A**	***)
IM-NT-GC	**B**	**B**	**B**	**A**	***)
IM-NT(C)-BB	**B**	**B**	**B**	**A**	***)
Inteli Vision 5 CAN Backlit	**B**	**B**	**B**	**A**	**B***

Inteli Vision 8 Marine	**B**	**B**	**B**	**A**	**B***
InteliVision 12TOEM	**B**	**B**	**B**	**A**	**B***
I-AOUT8	**B**	**B**	**B**	**A**	***)
Inteli IO8/8	**B**	**B**	**B**	**A**	***)
Inteli AIN8	**B**	**B**	**B**	**A**	***)
Inteli AIN8TC	**B**	**B**	**B**	**A**	***)
IS-AIN8	**B**	**B**	**B**	**A**	***)
IS-AIN8TC	**B**	**B**	**B**	**A**	***)
IS-BIN16/8	**B**	**B**	**B**	**A**	***)
IGS-PTM	**B**	**B**	**B**	**A**	***)
IGL-RA15	**B**	**B**	**B**	**A**	***)
I-CB	**B**	**B**	**B**	**A**	***)
I-CR	**B**	**B**	**B**	**A**	***)
I-CR-R	**B**	**B**	**B**	**A**	***)
I-LB+	**B**	**B**	**B**	**A**	***)
I-RB16	**B**	**B**	**B**	**A**	***)
I-RB8	**B**	**B**	**B**	**A**	***)
I-LBA	**B**	**B**	**B**	**A**	***)
IG-MTU 2-1	**B**	**B**	**B**	**A**	***)
IG-MTU/MARINE	**B**	**B**	**B**	**A**	***)
IG-AVRi-Marine	**B**	**B**	**B**	**A**	***)
IG-AVRi-TRANS-Marine	**B**	**B**	**B**	**A**	***)
IGS-LSM+PMS Dongle	**B**	**B**	**B**	**A**	***)

*) Panel front only
**) Temperature class D: When heating of display is included
***) Required protection according to the Rules to be provided upon installation on board

ANSI Functions for Generator Protection:

59	Overvoltage
27	Undervoltage
47	Phase sequence voltage
81H	Overfrequency
81L	Underfrequency
51	Overcurrent (range 100...200%)
46	Current unbalance
32	Overload
51N+64	Earth Fault
32R	Reverse power

Place of manufacture

TOROLA electronic, spol. s r.o.
Nádražní 906
744 01 Frenštát pod Radhoštěm
Czech Republic

Application/Limitation

1. To be mounted in steel cabinet with minimum IP44.
2. As stated in installation manual under “Marine application notes”, power supply terminals shall be equipped with additional external component (e.g MCZ OVP CL 24VUC 1.25A or equivalent) for additional surge protection.
3. An additional independent safety system for engine protection will be required to have the system approved according to DNV GL Rules.
4. Marine Application Notes in the IGS-NT Installation Manual are to be observed.

The following documentation of the actual application is to be submitted for approval by the manufacturer of the application system in each case.

- Reference to this Type Approval Certificate
- Functional description
- System block diagram
- Circuit diagrams
- Power supply arrangement (may be part of the System block diagram)
- List of control and monitored points (indication-, alarm-, safety- and protection function list with thresholds, etc.)
- Test program for certification

The Type Approval covers hardware listed under Product description.

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 (i.e. switchboard manufacturer) 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 GL for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Tests carried out

Applicable tests according to DNV GL Class guideline CG-0339, edition November 2016.
Performance Test and Test of Generator protection function for parts of IEC60255.

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 this certificate.

END OF CERTIFICATE