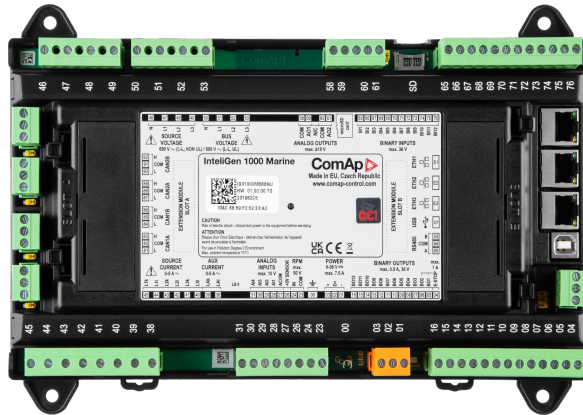


# InteliGen 1000 Marine



Order code: IG31000MBBB

## Controller for parallel marine applications

# Datasheet

## Product description

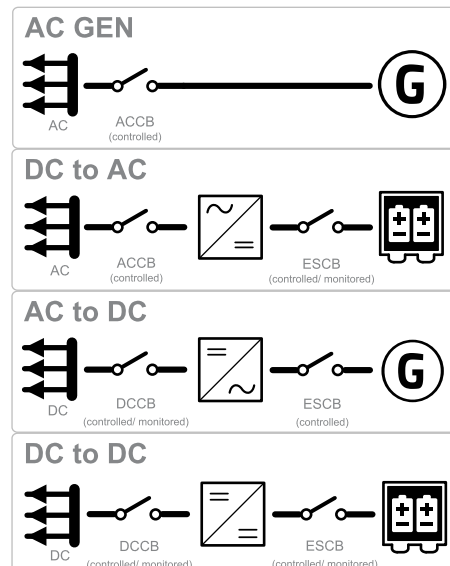
- True RMS measurement is used with Voltage, Current and Power measurement.
- Secure Remote control and monitoring
- Highly flexible yet configurable solution for switchgear applications

## Key features

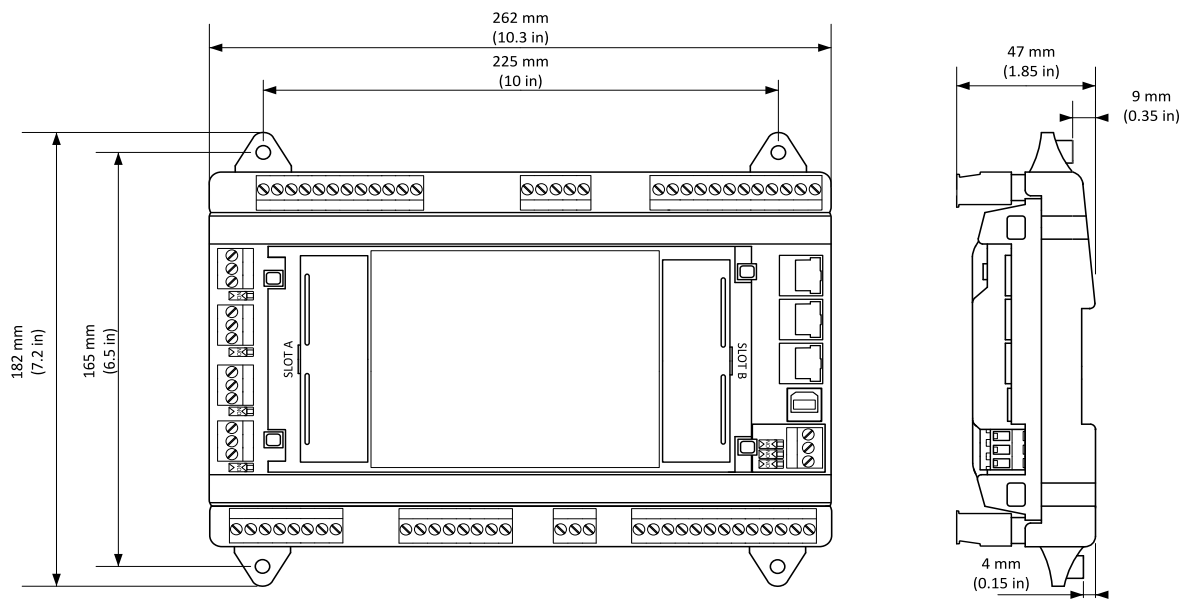
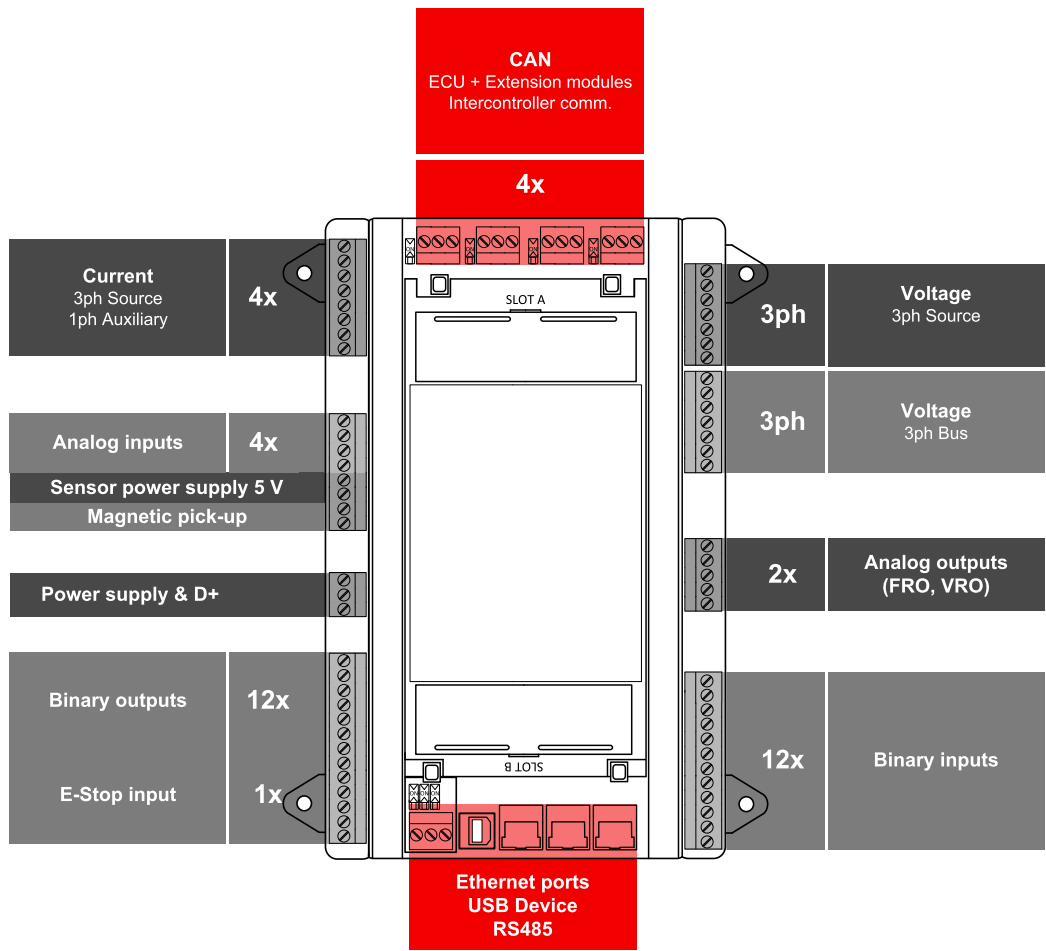
- Hardware compliant to the latest switchgear market needs
- State of the art AC and DC (via extension module) accuracy measurements which allows to participate on primary frequency control mechanism, grid balancing and demand response projects
- Cybernetic security by design, based on the ANSI/ISA-62443 standard
- Large portion of both local and remote monitoring options, with high number of at once connected clients split into “trusted” and “untrusted” zones
- Multiple Island operation with cooperation up to 64 additional gen-set/mains/tie controllers
- Several load transfer options with possibility of less than 100ms load transfer
- Redundant inter-controller line for critical applications like datacentres, hospitals
- Double redundancy of the kW and kVAr sharing
- User management allowing to handle up to 30 users

- AirGate 2.0 makes sure that the connection to the controller is established faster from all around the world, and is more reliable than ever before.
- Internal PLC interpreter with easy to use PLC Editor, for simple and fast creation of specific logic
- Up to 31 characters in texts, parameters, Alarms for system clarity and easy troubleshooting
- Compatibility with ComAp IG/IS/IM-NT(C)
- ENABLE/DISABLE concept of features and protections makes the system highly versatile yet simple and easy for both commissioning engineers and operators

## Application overview



# Terminals and dimensions



# Technical data

## Power supply

Power supply range	24 VDC 8-36 V DC
Power consumption	16 W
RTC battery	Replaceable, type CR1632 3V
Fusing power	8 A
Fusing E-STOP	1 A
Max. Heat Dissipation	16 W

## Operating conditions

Operating temperature	-40 °C to +70 °C
Storage temperature	-40 °C to +80 °C
Operating humidity (norm 60068-2-30)	25/55°C, 48hours,95 % non-condensing (EN 60068-2-30)
Protection degree	IP20
Vibration	5-25 Hz, ± 1.6 mm 25-100 Hz, a = 4 g
Shocks	a = 500 m/s <sup>2</sup>
Surrounding air temperature rating 70 °C.	
Suitable for pollution degree 2.	

## AC Current measurement

Measurement inputs	3ph Source current 1ph Aux current (Auxiliary current)
Measurement range	1 A / 5 A
Maximum continuous current	2 A / 10 A
Allowed overload	18 A for 15 sec.
Accuracy	±3 mA / ±15 mA for 0.0 to 0.4 A / 0.0 to 2.0 A 0.75 % of value for 0.4 to 1.0 A / 2.0 to 5.0 A
Frequency range	40-70 Hz (accuracy 0.002 %)
Input impedance	0.68 MΩ ph-ph

## AC Voltage measurement

Measurement inputs	3ph Source voltage 3ph Bus voltage
Measurement range	200 V ph-ph suitable also for VTs output
	400 V ph-ph
	690 V ph-ph / 600 V ph-ph (UL)
Linear measurement and protection range (maximal voltage)	750 V ph-ph
Accuracy	0.25 %
Frequency range	40-70 Hz (accuracy 0.002 %)
Input impedance	0.72 MΩ ph-ph
Measurement category CAT III, overvoltage category III	

## E-Stop

Dedicated terminal for safe Emergency Stop input.
Physically disconnects BO 1 & BO 2 from power supply.

## Binary inputs

Number	12, non-isolated
Close/Open indication	0-2 V DC close contact 6-36 V DC open contact
Configurable	Pull-up / Pull-down
Pulse input	Bin 9 and 10 max. 50 Hz

## Binary outputs

Number	12, non-isolated
Max. current	0.5 A
Switching to	Positive supply terminal

## Analog inputs

Number	4, switchable (R/U/I)
Range	R = 0-10000 Ω; U = 0-10 V; I = 0-20 mA
Accuracy	R: 2 % from value for 0-250 Ω
	R: 4 % from value for 250-2500 Ω
	R: 6 % from value for 5000-10000 Ω
	U: 1 % from value ±100 mV I: 1 % from value ±200 uA

## Voltage regulator output

Protection	Reinforced isolation
Type	Switchable: U ±10 V, I ±20 mA, PWM: 0 V/5 V
Accuracy	U: 1 % from value ±100 mV
	I: 1 % from value ±200 uA

## Frequency regulator output

Protection	Basic isolation
Type	Switchable: U ±10 V, I ±20 mA, PWM: 0 V/5 V
Accuracy	U: 1 % from value ±100 mV
	I: 1 % from value ±200 uA

## Magnetic pick-up

Minimum input voltage	4 V pk-pk to 50 V pk-pk in range 4 Hz to 1 kHz
Working voltage range	6 V pk-pk to 50 V pk-pk in range 4 Hz to 5 kHz 10 V pk-pk to 50 V pk-pk in range 4 Hz to 10 kHz
Frequency input range	4 Hz to 10 kHz
Frequency measurement tolerance	0.2 % from range 10 kHz

## Communications

USB Device	Basic isolation, USB type B
RS 485	Basic isolation
ETH1 ETH2 ETH3	10/100 Mbit
CAN 1A CAN 2A CAN 1B CAN 2B	Basic isolation, 1000/250/50 kbps , nominal impedance 120 Ω

## Weight

Controller	750 g
Package	920 g

Controller handles 300 million records into the History, which represents roughly 1 record per second during 9,5 years. Shall be the History recording faster, the controller lifetime will become smaller.

## Available external displays

Product	Description	Order code
InteliVision 5.2 Marine	5" TFT Marine certified external display with 800x480 px resolution	<a href="#">RD2IV5BMBAA</a>
InteliVision 13Touch	13.3" Marine certified display unit with 1920 × 1080 px resolution	<a href="#">RD1IV13TBME</a>

## Available CAN modules

Product	Description	Order code
Inteli AIN8	8 Analog Input Channels and 1 RPM/Impulse Input Module	<a href="#">I-AIN8</a>
Inteli AIN8TC	8 Analog Input Channels for termocouples measurement	<a href="#">I-AIN8TC</a>
Inteli AIO9/1	4 Analog Inputs for differential voltage measurement, 4 Analog Input equipment channels, 1 Analog Input for resistance measurement and 1 Analog Output	<a href="#">I-AIO9/1</a>
Inteli IO8/8	16 Configurable Binary Inputs/Outputs and Analog Outputs Module	<a href="#">I-IO8/8</a>
IGL-RA15	Remote Annunciator w/ 15 programmable LEDs	<a href="#">EM2IGLRABAA</a>
IGS-PTM	4 Analog Inputs, 1 Analog Output, 8 Binary Inputs and 8 Binary Outputs	<a href="#">IGS-PTM</a>
I-AOUT8	8 configurable analog outputs	<a href="#">I-AOUT8</a>
IS-AIN8	8 configurable analog inputs	<a href="#">IS-AIN8</a>
IS-BIN16/8	16 galvanically separated inputs, 8 binary outputs, 2 pulse inputs	<a href="#">IS-BIN16/8</a>
InteliFieldbus Gateway	Modbus TCP/RTU Communication gateway	<a href="#">CM1IFGATBBB</a>
I-CR	CAN Repeater Module, compatible when using 32C/8C CAN Intercontroller Comm Mode	<a href="#">I-CR</a>
InteliGateway 300	Communication gateway with configurable interfaces between Modbus TCP/RTU, ComAp CAN, WebSupervisor and InteliScada protocols allowing user-defined interconnection of all attached devices	<a href="#">CM2GW300BAB</a>

## Available external modules

Product	Description	Order code
Inteli DC4/4	DC measurement module for direct DC voltage measurement up to 1500VDC and DC current measurement using external shunt with up to 100mV output.	<a href="#">EM1DC44XBDB</a>

## Functions and protections

Support of functions and protections as defined by ANSI (American National Standards Institute):

Description	ANSI code	Description	ANSI code	Power factor	55
Master unit	1	Load shedding	32P	Overvoltage	59
Stopping device	5	Reverse power	32R	Alarm relay *	74
Multi-function device	11	Master sequence device	34	Vector shift	78
Overspeed	12	Undercurrent	37	Reclosing relay	79
Underspeed	14	Excitation loss	40	Overfrequency	81H
Speed and frequency matching device	15	Unit sequence starting	44	Underfrequency	81U
Data communications device	16EFT 16SC	Current unbalance	46	Auto selective control/transfer	83
Starting-to-running transition contractor	19	Voltage unbalance	47	Regulating device	90
Distance relay	21	Incomplete sequence relay	48		
Synchronizing-check	25	Temperature monitoring	49T		
Thermal relay	26	Earth fault current	50N+64		
Undervoltage	27	Overcurrent IDMT	51		
Annunciator	30	Earth fault current IDMT	51+64		
Overload	32	AC circuit breaker	52		


\* extension module IGL-RA15 required



E-mail: [info@comap-control.com](mailto:info@comap-control.com)  
Web: [www.comap-control.com](http://www.comap-control.com)

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## Certifications and standards

<ul style="list-style-type: none"> <li>&gt; EN 61000-6-2</li> <li>&gt; EN 61000-6-4</li> <li>&gt; EN 61010-1</li> <li>&gt; EN 60255-1</li> <li>&gt; EN 60529 (IP20)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; EN 60068-2-1 (-40 °C/16 h)</li> <li>&gt; EN 60068-2-2 (70 °C/16 h)</li> <li>&gt; EN 60068-2-6 (2÷25 Hz / ±1,6 mm; 25÷100 Hz / 4,0 g)</li> <li>&gt; EN 60068-2-27 (a=500 m/s<sup>2</sup>; T=6 ms)</li> <li>&gt; EN 60068-2-30 (25/55 °C, RH 95%, 48 h)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; UL6200 *</li> <li>&gt; UKCA</li> </ul>	
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\* ULC 6200:2019 Certified (see the NFL File for the FW version with the Witness test if it is required by the certification of the end product)

## Marine certification

<ul style="list-style-type: none"> <li>&gt; ABS</li> <li>&gt; BV</li> <li>&gt; CCS</li> <li>&gt; CRS</li> </ul>	<ul style="list-style-type: none"> <li>&gt; DNV</li> <li>&gt; KRS</li> <li>&gt; LR</li> <li>&gt; RINA</li> </ul>
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## List of SW Key Features

SW Key Feature	Order Code
PMS Marine	SKPMSMXXX01
DC PMS Marine	SKDCPMSMX01
Modbus client	SKMODBCLI01
PLC package	SKPLCPCKG01
Hot Swap Redundancy	SKHOTSWAP01
CAN bus redundancy	SKREDCAN201



E-mail: [info@comap-control.com](mailto:info@comap-control.com)  
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