

Order code: IG4200XXBAA, IG4200XXBLA

## Controller for multiple gen-set applications

# Datasheet

### Product description

**InteliGen4 200** is a diesel gen-set control unit for common paralleling applications supporting both single and multiple gen-sets running in grid-tied or island operations.

### Key benefits

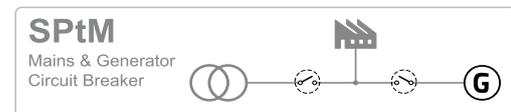
- > **Great flexibility** to fit all application needs
  - >> User-defined protections and setpoints, ease-to-use PLC interpreter and plug-in modules for I/O extension
- > **Communication capabilities and protocols**
  - >> In-built USB host/device, CAN and RS485
  - >> Plug-in modules for ethernet and 4G connectivity
  - >> Modbus RTU/TCP, SNMP v1, v2c and v3, J1939
- > **Cyber security by design** to protect your business
  - >> Requirements of ISA 62443 level 2-3 by design

### Key features

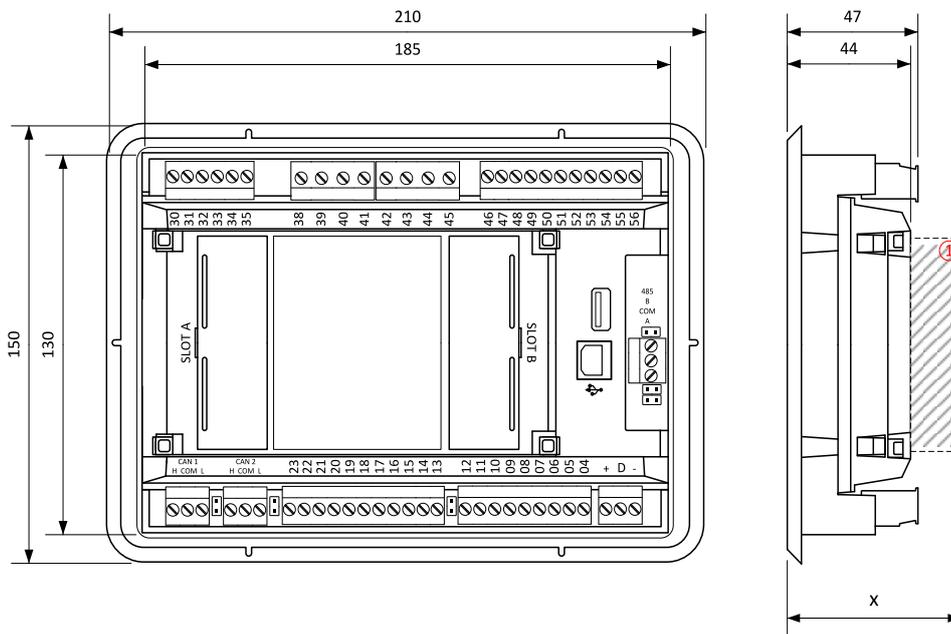
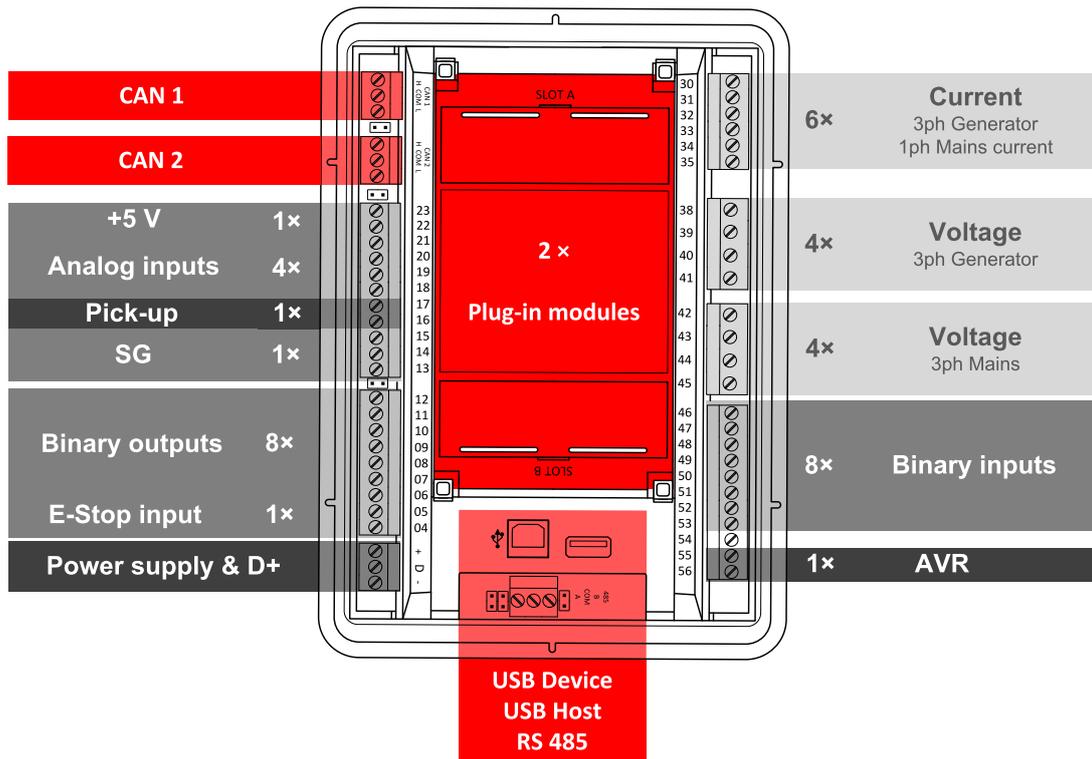
- > Support for installations with the option for cooperation with up to **32 gen-sets/mains/tie controllers**
- > Keeping your business and data as safe as possible, meeting the **ISA 62443 level 2 - level 3** security requirements
  - >> User access management with 4 unique user accounts with individual roles
- > **StageV and Tier4Final** ready by default
- > **Multi ECU** for communication with more J1939 devices such as engine ECUs, digital AVR etc.
- > **Built-in PLC interpreter** with the easy-to-use PLC Editor
- > Remote connection and monitoring
  - >> **AirGate 2.0** for easy connection to your equipment remotely, without worrying about your asset's IP address
  - >> WebSupervisorcloud-based tool for fleet management

- > **User-defined protections and setpoints** on top of default parameters
- > **Compatible load/Var sharing and power management** with other ComAp solutions
- > Slots for plug-in modules for 4G and GPS, additional Ethernet port, RS232/485 connection or additional binary inputs/outputs
- > **One hardware for more applications**, enabling an easy switch between MINT and SPTM application
  - >> Possibility to have also **mains application in a gen-set controller**
- > **Event-based and fully configurable history** for fast and easy troubleshooting
- > **Peak shaving** for limiting the import from the mains (e.g., due to higher prices)
- > **Load shedding** ensuring the most important loads are running even when there is a lack of power

### Application overview



## Dimensions, terminals and mounting



1 Plug-in module

**Note:** Dimension "x" depends on a plug-in module

**Note:** Dimensions are in millimeters.

**Note:** The final depth of the controller depends on the selected plug-in module – it can vary between 47 mm and "x" mm. Mind also the size of connectors and cables (e.g. in case of RS232 connector, add about 60 mm more for standard RS232 connector and cable).

**Note:** The controller is mounted into panel doors as a standalone unit using provided holders. The requested cutout size is 187 × 132 mm. Use the screw holders delivered with the controller to fix the controller into the door.

# Technical data

## Power supply

Power supply range	8-36 VDC
Power consumption (without modules)	3.5 W
RTC battery	Replaceable (3 V)
Fusing power	4 A w/o BOUT consumption
E-Stop fusing	10 A
Max. Power Dissipation	9 W

## Operating conditions

Protection degree (front panel)	IP 65
Operating temperature	-20 °C to +70 °C
Operating temperature for Low Temp. version	-40 °C to +70 °C
Storage temperature	-30 °C to +80 °C
Operating humidity	95 % non-condensing (EN 60068-2-30)
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	

## D+

Max. output current	250 mA
Charging fail threshold	Adjustable

## Voltage measurement

Measurement inputs	3ph-n Gen voltage , 3ph-n Mains
Measurement range	10-277 V AC / 10-480 V AC (EU) 10-346 V AC / 10-600 V AC (US/Canada)
Linear measurement and protection range	350 V AC Ph-N 660 V AC Ph-Ph
Accuracy	1 %
Frequency range	30-70 Hz (accuracy 0.1 Hz)
Input impedance	0.72 MΩ ph-ph , 0.36 MΩ ph-n

## Voltage regulator output

Isolation	Isolated
Type	max ±10 V DC

## Speed governor output

Isolation	Non-isolated
Output Type	±10 V DC or 5 V @ 500 Hz

## Display

Type	Build-in monochromatic 3.2"
Resolution	132 × 64 px

## Communications

USB Device	Non-isolated type B connector
USB Host	Non-isolated type A connector
RS485	Isolated
CAN 1 + CAN 2	Isolated, 250 / 50 kbps, Terminator impedance 120 Ω
Protocols	Modbus RTU/TCP SNMP v1/v2c/v3 J1939

## Current measurement

Measurement inputs	3ph Gen current, 1ph Mains current
Measurement range	5 A
Max. allowed current	10 A
Accuracy	±20 mA for 0-2 A; 1 % of value for 2-5 A
Input impedance	<0.1 Ω

## E-Stop

Dedicated terminal for safe E-Stop input.	
Physical supply for binary outputs 1 & 2.	

## Binary inputs

Number	8
Close/Open indication	0-2 VDC close contact 6-36 VDC open contact

## Binary outputs

Number	8
Max. current	BO1,2=5 A (60 °C); BO1,2=4 A (70 °C), BO3-8=0.5 A
Switching to	positive supply terminal

## Analog inputs

Number	4, switchable (R/U/I)
Range	R = 0-2500 Ω; U = 0-10 V; I = 0-20 mA
Accuracy	R: ±2 % from value ±5 Ω in range 0-250 Ω R: ±4 % from value in range 250 Ω-2500 Ω U: 1 % from value ±100 mV I: 1 % from value ±0.2 mA

## +5 V Power supply output

Max. current	45 mA
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## Magnetic pickup

Voltage input range	4 Vpk-pk to 50 Vpk-pk in range 4 Hz to 1 kHz 6 Vpk-pk to 50 Vpk-pk in range 1 to 5 kHz 10 Vpk-pk to 50 Vpk-pk in range 5 to 10 kHz
Frequency input range	4 Hz to 10 kHz
Frequency measurement tolerance	0.2 % from measured value

## Available plug-in modules

Product	Description	Order code
CM-RS232-485	Dual port interface	<a href="#">CM223248XBX</a>
CM2-4G-GPS	4G & GPS plug-in communication module	<a href="#">CM24GGPSXBX</a>
CM3-Ethernet	Internet / Ethernet plug-in communication module	<a href="#">CM3ETHERXBX</a>
EM-BIO8-EFCP	8 additional binary inputs/outputs	<a href="#">EM2BIO8EXBX</a>

Note: Controller has 2 slots for plug-in modules.

## Available CAN modules

Product	Description	Order code
IGL-RA15	CAN remote annunciator with 15 LEDs	<a href="#">EM2IGLRABAA</a>
Inteli AIN8	CAN module with 8 analog inputs	<a href="#">I-AIN8</a>
Inteli IO8/8	CAN module with 8 binary inputs and 8 binary outputs	<a href="#">I-IO8/8</a>
IGS-PTM	CAN module with 8 binary inputs, 8 binary outputs, 4 analog inputs and 1 analog output	<a href="#">IGS-PTM</a>
Inteli AIN8TC	CAN module with 8 analog inputs dedicated for thermocouple sensors only.	<a href="#">I-AIN8TC</a>
Inteli AIO9/1	CAN module with analog inputs and outputs – designed for DC measurement.	<a href="#">I-AIO9/1</a>
I-CR	CAN Repeater Module.	<a href="#">I-CR</a>
I-CR-R	CAN Redundancy Module.	<a href="#">I-CR-R</a>

## Functions and protections

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

Description	ANSI code	Description	ANSI code
Master unit	1	Incomplete sequence relay	48
Stopping device	5	Temperature monitoring	49T
Multi-function device	11	Overcurrent	50/50TD
Overspeed	12	Earth fault	50G
Underspeed	14	Breaker failure	50BF
Speed and frequency matching device	15	Overcurrent IDMT	51
Data communication device	16	AC circuit breaker	52
Starting-to-running transition contactor	19	Power factor	55
Synchronizing check	25	Overvoltage	59
Thermal relay	26	Aux Overvoltage	59X
Undervoltage	27	Pressure switch	63
Aux Battery Under Voltage	27X	Liquid level switch	71
Overload (real power)	32P	Alarm relay**	74
Reverse power	32R	Vector shift	78
Master sequence device	34	Reclosing relay	79
Undercurrent	37	Overfrequency	81O
Excitation loss	40	Underfrequency	81U
Unit sequence starting*	44	ROCOF	81R
Current unbalance	46	Auto selective control/transfer	83
Voltage unbalance / Negative sequence voltage	47	Regulating device	90

\*MINT

\*\* extension module IGL-RA15 required

## 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 60068-2-1 (-20 °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> </ul>	<ul style="list-style-type: none"> <li>&gt; EN 60068-2-30:2005 25/55°C, RH 95%, 48hours</li> <li>&gt; EN 60529 (front panel IP65, back side IP20)</li> <li>&gt; UL 6200</li> </ul>		
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