# ComAp®
The heart of smart control

## InteliGen 200

**Order code: IG3200XXBAA**

# Parallel gen-set controller

# Datasheet

## Product description

▶ Comprehensive paralleling gen-set controller

▶ Parallel operation for up to 32 gen-sets

▶ Direct communication with ECU

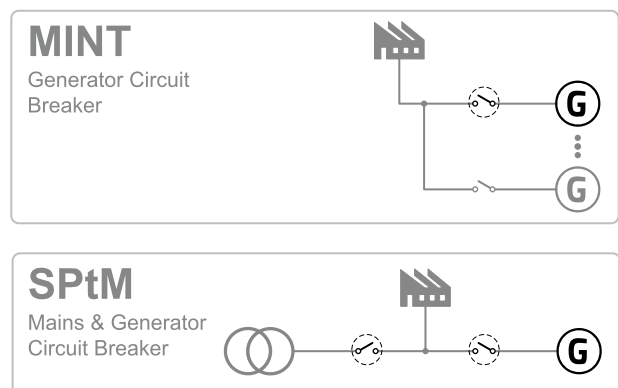▶ Remote control and monitoring

▶ Flexible, extendable, yet user friendly

## Key features

▶ Multiple Island or Single Parallel to Mains applications both in one controller

▶ PLC support with PLC editor and monitor

▶ Perfect solution for rental applications:

- Rental timers
- Geofencing and tracking via WebSupervisor*
- Alternative configuration
- Droop and Emergency droop

▶ Load sharing and VAr sharing via CAN

▶ Wide communication capabilities including

- Integrated USB for configuration
- Isolated RS485 port on board for MODBUS
- Integrated USB Host for uploading/downloading FW/Configuration with USB key

▶ High accuracy of voltage and current measurement
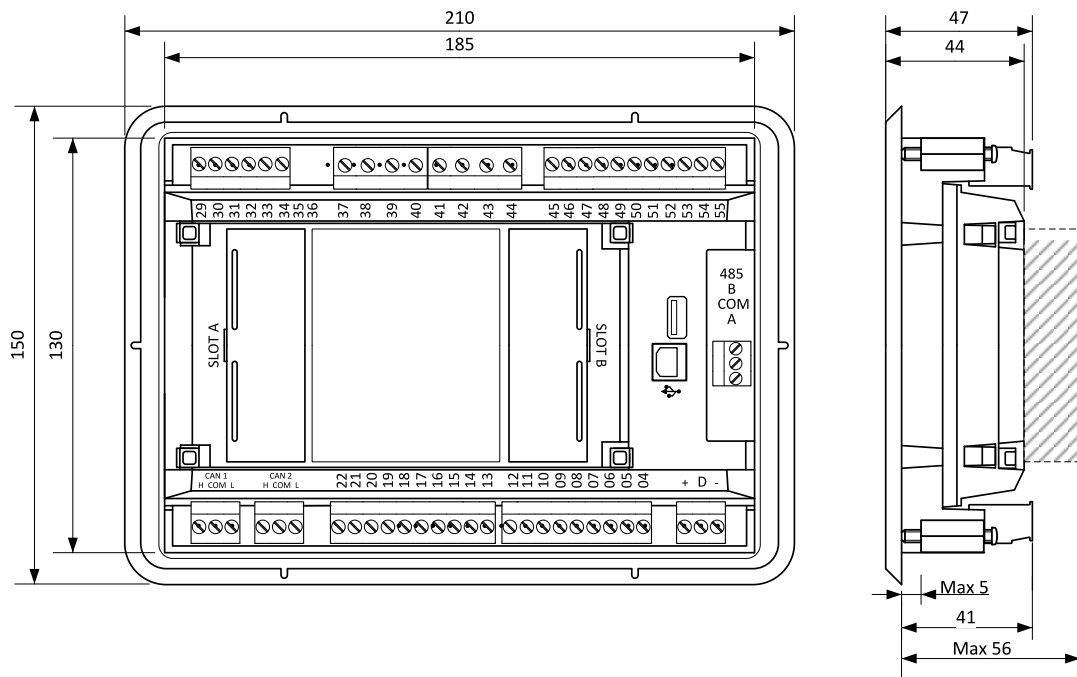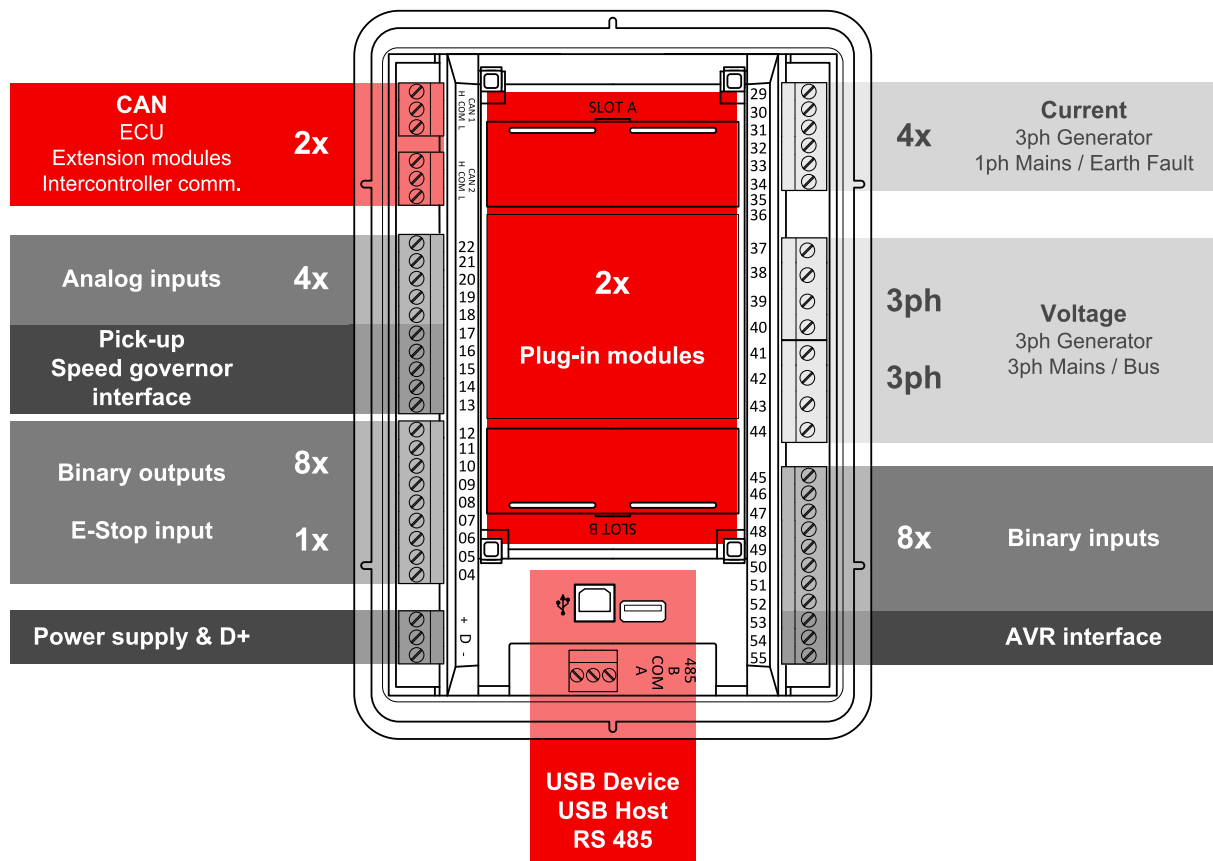
▶ Cloud-based monitoring and control

▶ Active SMS and emails in different languages*

▶ Up to 5 languages in the controller

▶ Configurable MODBUS

▶ Support of MODBUS RTU/TCP* or SNMP* v1/v2c

▶ Detailed history with up to 350 events

▶ Load shedding, dummy load capability

▶ Tier 4 Final support

▶ Automatic temperature based cooling/heating

▶ Comprehensive gen-set protections

▶ Multipurpose flexible timers with full calendar

▶ True RMS measurement

*Available with extension module.*

## Application overview

**MINT**
Generator Circuit Breaker

**SPtM**
Mains & Generator Circuit Breaker

# Dimensions, terminals and mounting



**CAN**
ECU
Extension modules
Intercontroller comm. — **2x**

**Analog inputs** — **4x**

**Pick-up**
Speed governor interface

**Binary outputs** — **8x**

**E-Stop input** — **1x**

**Power supply & D+**

**Current**
3ph Generator
1ph Mains / Earth Fault — **4x**

**Voltage**
3ph Generator — **3ph**
3ph Mains / Bus — **3ph**

**Binary inputs** — **8x**

**AVR interface**

**2x Plug-in modules**

SLOT A

SLOT B

**USB Device
USB Host
RS 485**

210
185
150
130
47
44
Max 5
41
Max 56

*Note: The final depth of the controller depends on the selected extension module - it can vary between 41 and 56 mm. Mind also a size of connector and cables (e.g. in case of RS232 connector add about another 60 mm for standard RS232 connector and cable).*

# Technical data

## Power supply

| | |
|---|---|
| **Power supply range** | 8-36 V DC |
| **Power consumption (without modules)** | 320 mA / 8 V DC<br>210 mA / 12 V DC<br>120 mA / 24 V DC<br>90 mA / 36 V DC |
| **RTC battery** | Replaceable |
| **Fusing power** | 4 A w/o BOUT consumption |
| **Fusing ESTOP** | 12 A |
| **Max. Power Dissipation** | 9 W |

## D+

| | |
|---|---|
| **Max. excitation current** | 250 mA |
| **Charging fail threshold** | 80 % of Usupply |

## Operating conditions

| | |
|---|---|
| **Operating temperature** | -20˚C to +70˚C |
| **Storage temperature** | -30˚C to +80˚C |
| **Operating humidity** | 95 % w/o condensation |
| **Protection degree (front p.)** | IP 65 |
| **Vibration** | 5-25 Hz, ±1,6 mm<br>25-100 Hz, a = 4 g |
| **Shocks** | a = 500 m/s$^2$ |
| Surrounding air temperature rating 70°C. | |
| Suitable for pollution degree 2. | |

## Voltage measurement

| | |
|---|---|
| **Measurement inputs** | 3ph-n Gen voltage<br>3ph-n Mains voltage |
| **Measurement range** | 277 V |
| **Max. allowed voltage** | 350 V |
| **Accuracy** | 1 % |
| **Frequency range** | 40-70 Hz (accuracy 0.1 Hz) |
| **Input impedance** | 0.72 MΩ ph-ph<br>0.36 MΩ ph-n |

## Current measurement

| | |
|---|---|
| **Measurement inputs** | 3ph Gen current<br>1ph Mains current |
| **Measurement range** | 5 A |
| **Max. allowed current** | 10 A |
| **Accuracy** | 1 % for 0°C to 50°C<br>1.5 % for full temperature range |
| **Input impedance** | < 0.1 Ω |

## Display

| | |
|---|---|
| **Type** | Build-in monochromatic 3.2" |
| **Resolution** | 132 x 64 px |

## E-Stop

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

## Binary inputs

| | |
|---|---|
| **Number** | 8 non-isolated |
| **Close/Open indication** | 0-2 V DC close contact<br>6-36V DC open contact |

## Binary outputs

| | |
|---|---|
| **Number** | 8 non-isolated<br>(2 high current + 6 low current) |
| **Max. current** | BO 1, 2 = 4 A, BO 3-8 = 0.5 A |
| **Switching to** | Positive supply terminal |

## Analog inputs

| | |
|---|---|
| **Number** | 4 Resistive |
| **Resolution** | 0.1 Ω |
| **Range** | 0-1500 Ω |
| **Input impedance** | 170 Ω |
| **Accuracy** | ±2 % from value (0-2.5 kΩ )<br>±1.5 kΩ in range 2.5-15 kΩ |

## Voltage regulator output

| | |
|---|---|
| **Protection** | Isolated |
| **Type** | Max ±10 V DC |

## Speed governor output

| | |
|---|---|
| **Output type** | ±10 V DC or 5 V @ 500 Hz PWM selectable by jumper |
| **Protection** | Non-isolated |

## 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<br>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** | Non-isolated type B connector |
| **USB host** | Non-isolated type A connector |
| **RS 485** | Isolated |
| **CAN 1 + CAN 2** | Isolated, 250 / 50 kbps<br>nominal impedance 120 Ω |

# Available extension plug-in modules

| Product | Description | Order code |
|---|---|---|
| **CM-4G-GPS** | GSM modem / 4G wireless internet and GPS locator | CM14GGPSXBX |
| **CM-Ethernet** | Ethernet interface | CM2ETHERXBX |
| **CM-GPRS** | GSM modem / GPRS wireless internet | CM2GPRSXXBX |
| **CM-RS232-485** | Dual port interface | CM223248XBX |
| **EM-BIO8-EFCP** | 8 additional binary inputs/outputs; current measurement | EM2BIO8EXBX |

*Note: Maximally 2 plug-in modules can be connected in the same time.*

# Available extension CAN modules

| Product | Description | Order code |
|---|---|---|
| **Inteli AIN8** | 8 Analog Input Channels and 1 RPM/Impulse Input Module | I-AIN8 |
| **Inteli IO8/8** | 16 Configurable Binary Inputs/Outputs and Analog Outputs Module | I-IO8/8 |
| **IGL-RA15** | Remote Annunciator w/ 15 programmable LEDs | EM2IGLRABAA |
| **IGS-PTM** | Up to 12 additional Analog/Binary Input/Output Module | IGS-PTM |

*Note: Maximally 5 CAN modules can be connected in the same time.*

# Functions and protections

The described product fully supports the following functions and protections as defined by ANSI (American National Standards Institute):

| Description | ANSI code | Description | ANSI code |
|---|---|---|---|
| **Synchronism check** | 25 | **Earth fault current** | 50N + 64 |
| **Under voltage** | 27 | **Overcurrent (IDMT)** | 51 |
| **Overload** | 32 | **Power factor** | 55 |
| **Load shedding** | 32P | **Over voltage** | 59 |
| **Reserve power** | 32R | **Gas (fuel) level** | 71 |
| **Excitation loss** | 40 | **Vector shift** | 78 |
| **Current unbalance** | 46 | **Over frequency** | 81H |
| **Voltage asymmetry and Phase rotation** | 47 | **Under frequency** | 81L |
| **Temperature** | 49T | **ROCOF** | 81R |
| **Generator overcurrent** | 50 | | |

- ▶ EN 61000-6-2
- ▶ EN 61000-6-4
- ▶ EN 61010-1
- ▶ EN 61000-2-1 (-20 °C/16)
- ▶ EN 61000-2-2 (70 °C/16 h)
- ▶ EN 61000-2-6 (2÷25 Hz / ±1,6 mm; 25÷100 Hz / 4,0 g)
- ▶ EN 61000-2-27 (a=500 m/s$^2$; T=6 ms)
- ▶ EN 61000-2-30
- ▶ EN 60529 (front panel IP65, back side IP20)

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