ComAp
The heart of smart control

InteliGen 500 G2

Order code: IG4500XXBAA

Controller for multiple gen-set applications

Datasheet

Product description

A paralleling controller with 5" colour display for advanced and more complex diesel gen-set applications, supporting both single and multiple gen-sets running in grid-tied or island operations.

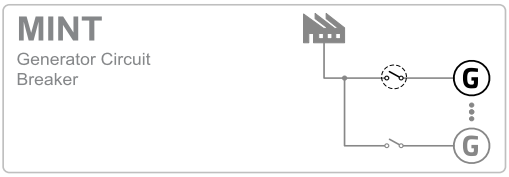
Key benefits

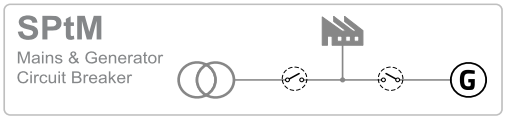
- **Great flexibility** and **wide range of applications** support
  - User-defined protections and setpoints, large PLC interpreter and easy extendability using SW key features
- **Comunication capabilities and protocols**
  - In-built USB host/device, CAN, RS485 and Ethernet ports
  - Modbus RTU/TCP, SNMP v1, v2c and v3, J1939
- **Cyber security by design** to protect your business
  - Requirements of ISA 62443 level 2-3 by design

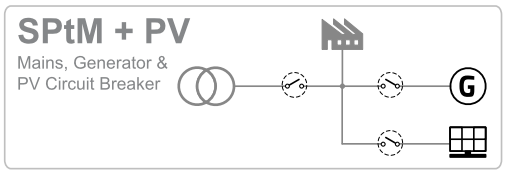
Key features

- 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 10 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.
- **Start-up synchronisation** to minimise start sequence time and get the gen-set system up minimum possible delay
- **PV control supporting small hybrid microgrid** (HMG) sites*
- Faster and cost-effective operations with **signal sharing over a CAN bus across a group of control units***
- **Modbus Client** which can initiate Modbus communication and control 3rd party devices*
- **Built-in PLC interpreter** with the 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

Application overview

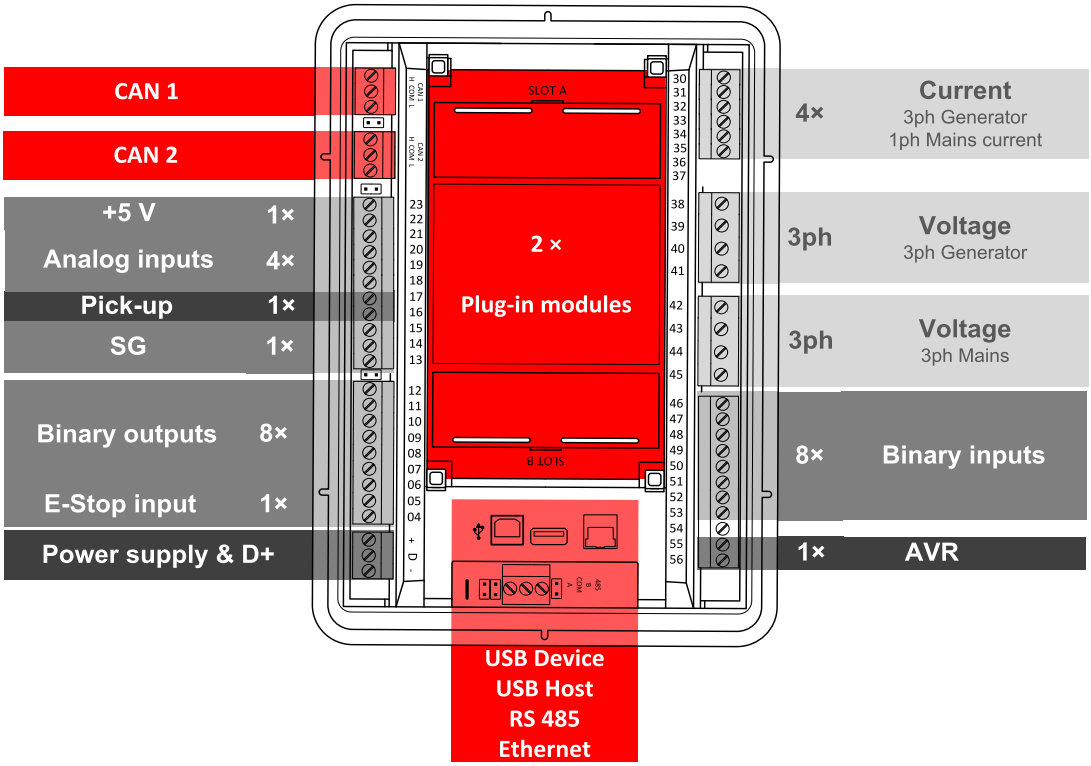


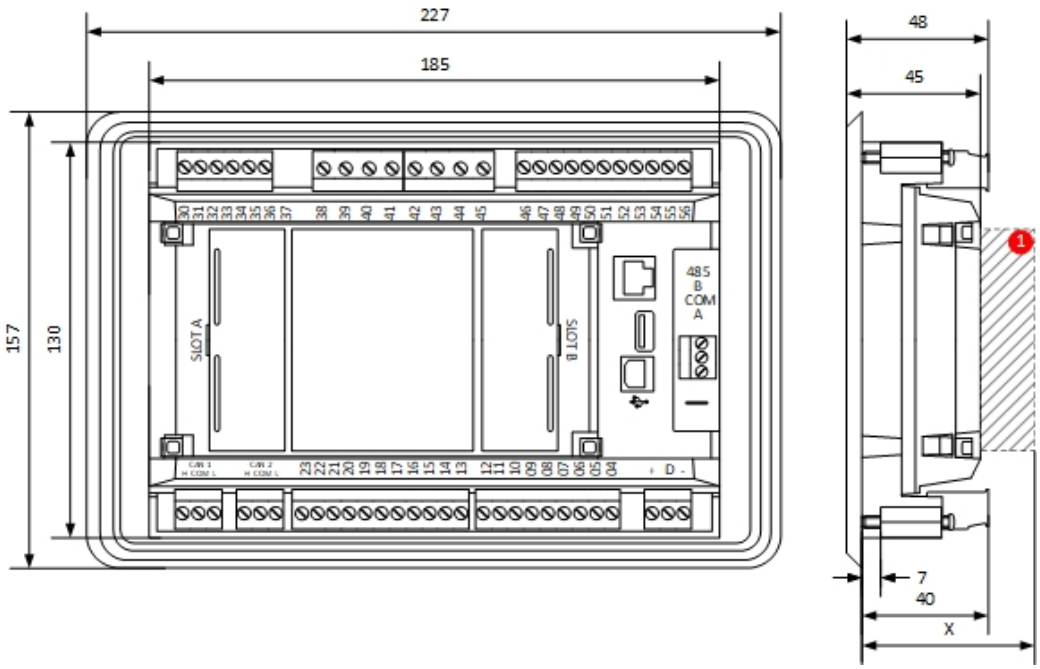




*Extended feature (SW key required)

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)	6 W
RTC battery	Replaceable (3 V)
Fusing power	5 A / 6 × 0.5 A BOUT
E-Stop fusing	2 A
Max. Power Dissipation	10 W

Operating conditions

Protection degree (front panel)	IP 65
Operating temperature	-30 ˚C to +70 ˚C (-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^2
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 0.01 Hz, resolution 0.001 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 colour TFT 5"
Resolution	800 × 480 px

Communications

USB Device	Non-isolated type B connector
USB Host	Non-isolated type A connector
RS485	Isolated
Ethernet	10/100 Mbit
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, non-isolated
Close/Open indication	0-2 VDC close contact 6-36 VDC open contact

Binary outputs

Number	8, non-isolated
Max. current	BO 1-8 = 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	100 mA

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

Note: **) If the device is powered on above -30 °C.*

Available plug-in modules

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

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

Available CAN modules

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

Available external displays

Product	Description	Order code
InteliVision 5.2	5" TFT external display with 800 × 480 px resolution.	RD2IV5BXBAA
InteliVision 10Touch	10.1" display unit for ComAp controllers with pre-installed InteliSCADA display.	RD1IV10TBPF
InteliVision 13Touch	13.3" display unit for ComAp controllers with pre-installed InteliSCADA display.	RD1IV13TBME
InteliVision 18Touch G2	18.5" display unit for ComAp controllers with pre-installed InteliSCADA Lite.	RD2IV18TBPE

List of Extended features

Extended feature	Description	Order code
IG500 G2 Suite	A bundle of features including large PLC capacity, shared signals over CAN line and more.	SKEFSUITE01
Modbus Client	Modbus Client functionality for integration of 3rd party devices.	SKMODBCLI01
PV Control	The control of small hybrid microgrid sites consisting of a grid connection and a single genset and photovoltaic (PV) inverters.	SKEFPVCTRLX

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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

- EN 61000-6-2
- EN 61000-6-4
- EN 61010-1
- EN 60068-2-1 (-20 °C/16 h)
- EN 60068-2-2 (70 °C/16 h)
- EN 60068-2-6 (2÷25 Hz / ±1,6 mm; 25÷100 Hz / 4.0 g)
- EN 60068-2-27 (a=500 m/s^2 ; T=6 ms)
- EN 60068-2-30:2005 25/55°C, RH 95%, 48hours
- EN 60529 (front panel IP65, back side IP20)
- EN 60068-2-14:2009
- EN 60068-2-78: 2012
- UL 6200
- EN IEC 60255-127: 2014
- EN 60255-27: 2014
- EN 60255-26: 2013
- EN IEC 60255-181: 2020
- EN IEC 60255-1: 2023

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