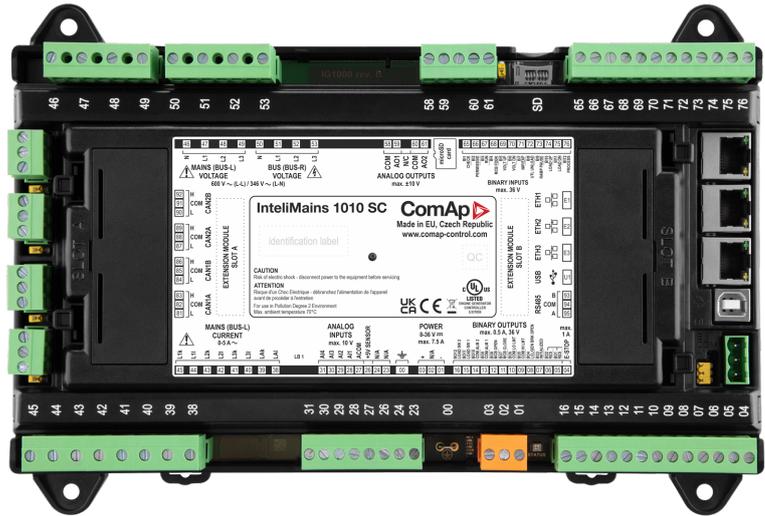


# InteliMains 1010 SC



Order code: IM31010SCBB

## Mains/Utility and tie breaker controller for switchgear applications

### Datasheet

#### Product description

The InteliMains 1010 SC is a state-of-the-art mains/utility and bus tie breaker controller, for use in concert with the InteliGen 1000 SC paralleling generator synchronizer and load sharing controller.

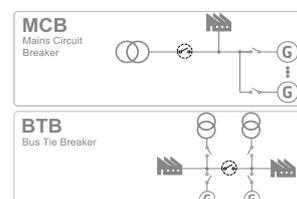
The InteliMains 1010 SC is ideal for control systems where an external PLC is used to dictate the system sequence of operation. Designed to simply “do what it’s told”, the InteliMains 1010 is used wherever synchronization is needed, it actively synchronizes InteliGen 1000 SC equipped generators to parallel with the utility/mains or connect multiple generator bus segments, greatly simplifying the system PLC control logic. The InteliMains 1010 SC provides revenue-grade mains/utility supervision and protection, with advanced decoupling protections like vector shift and ROCOF, and supports new grid code requirements with built-in protection curves for IEEE-1547 and many others.

#### Key features

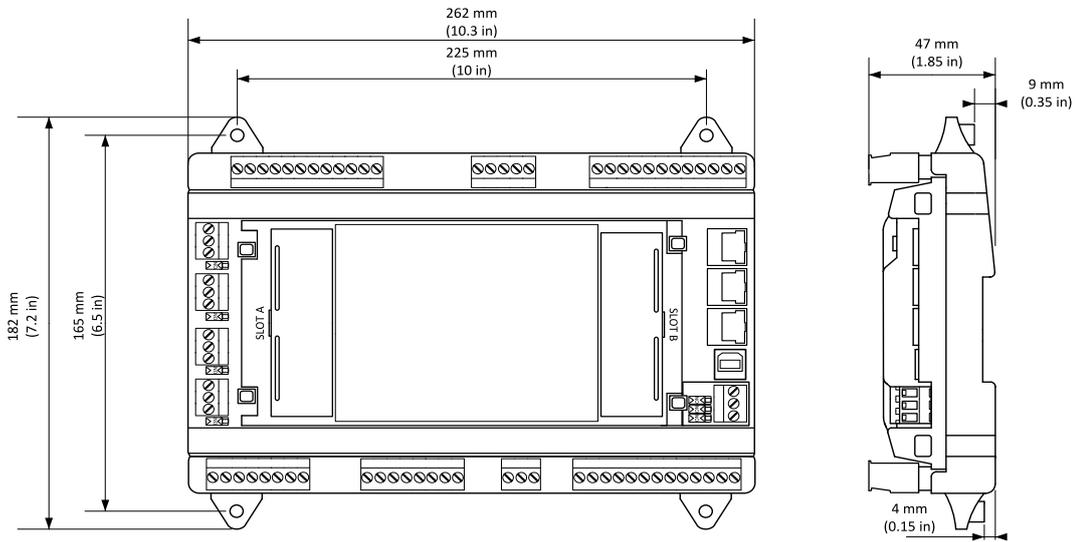
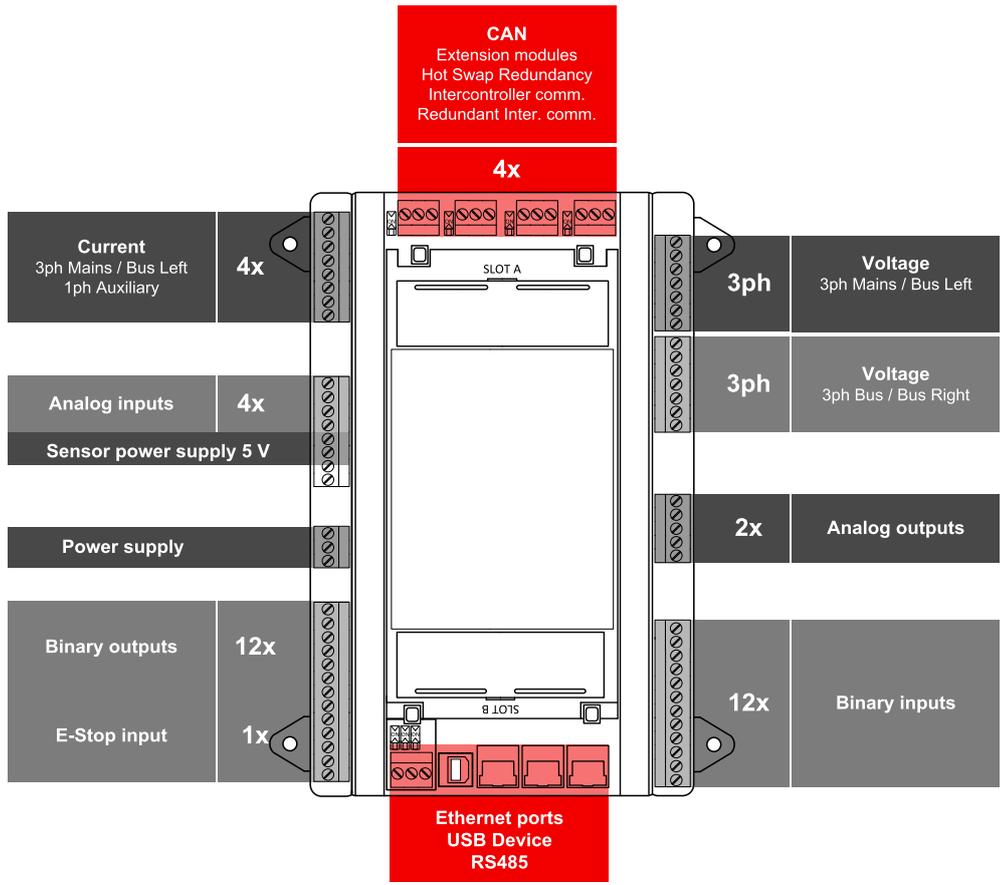
- Pre-programmed functions allow fast and easy system setup.
- When used with the InteliGen 1000 SC for control of genset/generator breakers, up to 64 controllers can be combined in a system.
- True RMS voltage and current measurement with .25% accuracy; power calculation to .50% accuracy.
- Cybersecure remote control and monitoring to ANSI/ISA-62443 standard.

- Compliant to European Grid codes (Requirements for Generators, VDE-AR-N 4110:2018, VDE-AR-N 4105:2019, G99) and American IEEE 1547.
- Options for critical applications (datacenters, hospitals):
- Redundant CAN inter-controller communication.
- Redundant controller hot-swap.
- Internal PLC functionality with easy-to-use PLC Editor, for simple and fast creation of specific logic for local control when desired (ex. local load shed/restore).
- Modbus master optional software key allows easy integration of Modbus-based devices for data sharing/control.
- Multiple options for transferring load from generators back to mains/utility, including <100ms closed transfer.
- Handles a large number of simultaneously-connected clients like HMIs, SCADA, BMS and others, allowing easy and convenient monitoring from both local and remote areas.

#### Application overview



# Terminals and dimensions



# Technical data

## Power supply

Power supply range	8-36 V DC
Power consumption	16 W
RTC battery	Replaceable, type CR1632 3V
Fusing power	8 A
Consumption	2.5 A Controller + 10 x 0.5 A BOUts
Fusing E-STOP	1.2 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 Mains (Bus Left) current 1ph Bus (Bus Right) 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 , 0.34 MΩ ph-n

## AC Voltage measurement

Measurement inputs	3ph-n Mains (Bus Left) voltage 3ph-n Bus (Bus Right) voltage
Measurement range	115 V ph-N / 200 V ph-ph suitable also for VTs output 231 V ph-N / 400 V ph-ph UL, cUL: 346 V ph-N / 600 V ph-ph
Linear measurement and protection range (maximal voltage)	433 V ph-N / 750 V ph-ph
Accuracy	0.25 %
Frequency range	40-70 Hz (accuracy 0.002 %)
Input impedance	0.72 MΩ ph-ph , 0.36 MΩ ph-n
Measurement category CAT III, overvoltage category III	

## E-Stop

Physically disconnects BO 1 & BO 2 from power supply.
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## 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

## Analog output 1

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

## Analog output 2

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

## 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 10Touch	10.1" Touchscreen display uni with 1280 x 800 px resolution	<a href="#">RD1IV10TBPF</a>
InteliVision 13Touch	13.3" Marine certified display unit with 1920 x 1080 px resolution	<a href="#">RD1IV13TBME</a>
InteliVision 18	18.5" Touchscreen display unit with 1366 x 768 px resolution	<a href="#">RD31840PBIE</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>

## Functions and protections

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

Description	ANSI code	Description	ANSI code
Multi-function device	11	Overcurrent IDMT	51
Speed and frequency matching device	15	AC circuit breaker	52
Data communications device	16ECFM+16SC	Power factor	55
Synchronizing-check	25	Overvoltage	59
Automatic Synchronizing Relay	25A	Pressure switch	63
Undervoltage	27	Liquid level switch	71
Annunciator*	30	Alarm relay *	74
Overload	32	Vector shift	78
Undercurrent	37	Reclosing relay	79
Current unbalance	46	Overfrequency	81H
Voltage unbalance	47	Underfrequency	81U
Temperature monitoring	49T	ROCOF	81R
Overcurrent	50/50TD		

\* 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 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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 Web: [www.comap-control.com](http://www.comap-control.com)

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## List of SW Key Features

SW Key Feature	Order Code
Modbus client	SKMODBCLI01
Hot Swap Redundancy	SKHOTSWAP01

### Supplier's Declaration of Conformity 47 CFR § 2.1077 Compliance Information

Unique identifier: IM31010SCBB

#### Responsible Party:

Kevin Counts

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60173 - Schaumburg, IL

USA

Tel: +1 815 636 2541

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

#### FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



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Web: [www.comap-control.com](http://www.comap-control.com)

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