ComAp®
The heart of smart control

InteliMains 1010

Mains supervision/Utility breaker controller

Datasheet

Product description

> Comprehensive Mains/Utility breaker controller for any site

> Synchronize set of gen-sets to the Mains/Utility when needed

> Acts as Mains protection relay

> Pre-programmed functions allow fast and easy system set-up

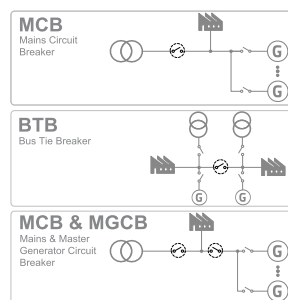> Large in-built PLC interpreter allows customization at no extra costs

Key features

> Hardware compliant to the latest switchgear market needs

> Supports latest Grid codes requirements from Europe, USA or Australia

> Cooperates with other controllers forming a solution with up to 64 units without any extra repeaters or extensions

> Concept of pre-programmed functions and internal PLC interpreter allows to make the basic solution fast and easy. Shall the project require any specific requirements this can be done easily at no extra costs and with minimum effort or programming skills

> Cyber security is guaranteed on the whole solution level, compliant to the ISA62443

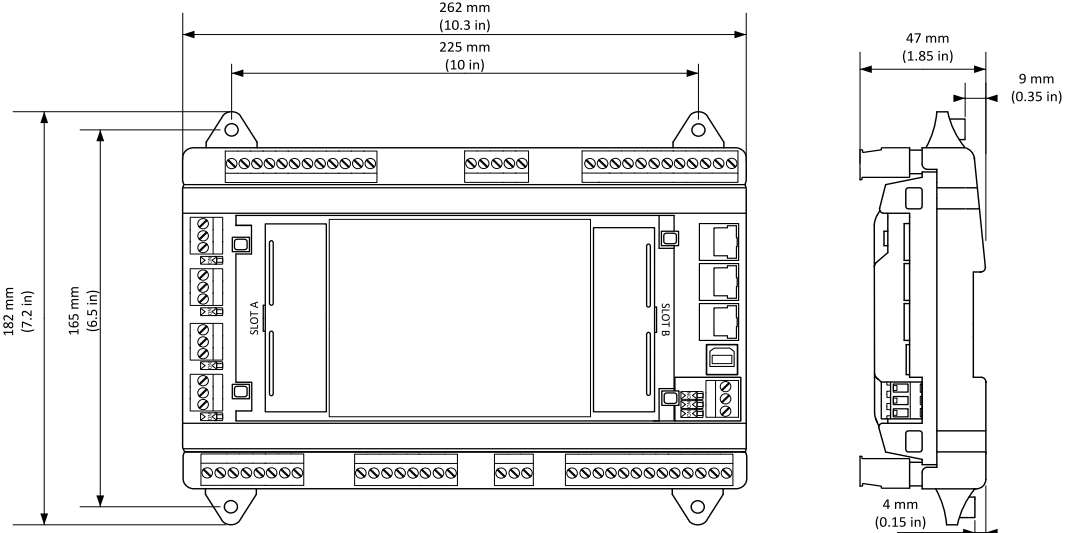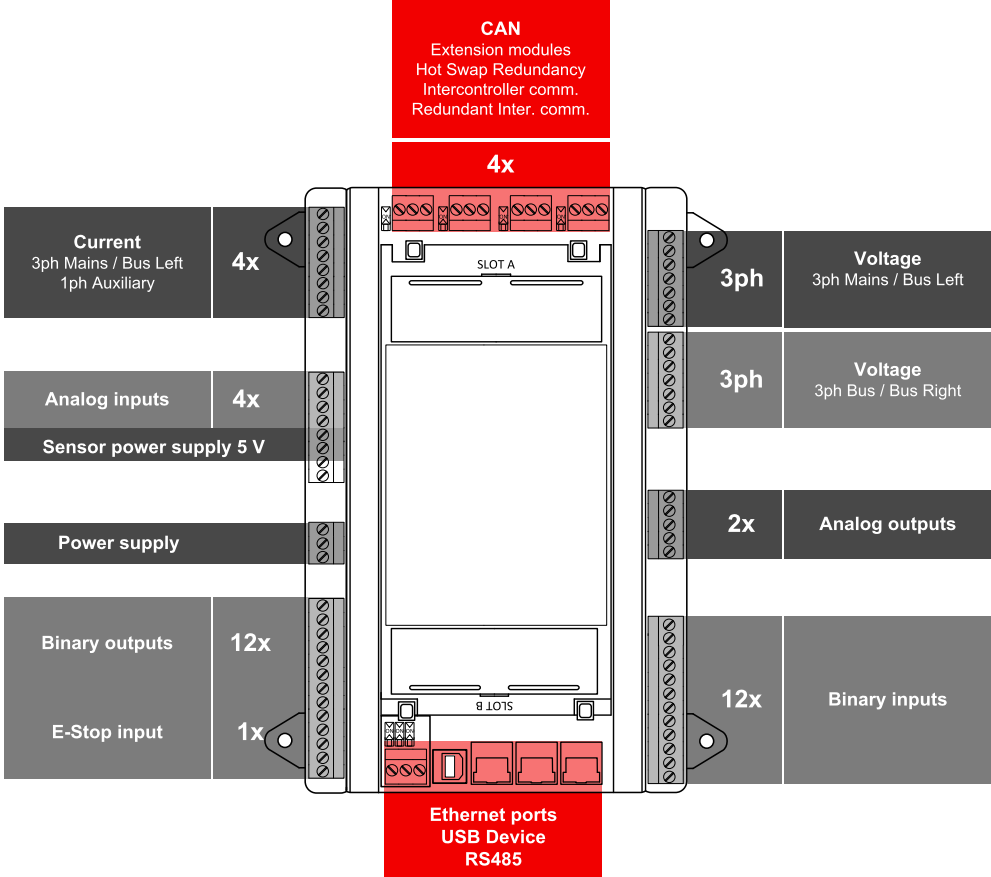> Handles large number of simultaneously connected clients like HMIs, SCADA, BMS and others, allowing easy and convenient monitoring from both local and remote areas

> AirGate 2.0 allows faster, more reliable remote connection from all around the world

> Modbus client (master) functionality allows easy integration of Modbus based devices into the InteliMains 1010 to benefit from provided data – e.g. diagnostics

> Load transfer from gen-sets back to Mains/Utility is adjustable, with an option of short time parallel operation, even below 100ms

> Double redundancy of the communication line with other controllers allows usage in complex applications like Data centres and others

> For easy handling for operators or troubleshooting purposes the InteliMains 1010 offers up to 31 characters in text fields which makes Parameters, Values and Alarms self-explanatory and easy to handle for anyone

Application overview

Dimensions, terminals and mounting

CAN
Extension modules
Hot Swap Redundancy
Intercontroller comm.
Redundant Inter. comm.

4x

SLOT A

Current
3ph Mains / Bus Left
1ph Auxiliary

4x

Analog inputs **4x**

Sensor power supply 5 V

Power supply

Binary outputs **12x**

E-Stop input **1x**

SLOT B

Ethernet ports
USB Device
RS485

Voltage
3ph Mains / Bus Left

3ph

Voltage
3ph Bus / Bus Right

3ph

2x **Analog outputs**

12x **Binary inputs**

262 mm
(10.3 in)

225 mm
(10 in)

182 mm
(7.2 in)

165 mm
(6.5 in)

SLOT A

SLOT B

47 mm
(1.85 in)

9 mm
(0.35 in)

4 mm
(0.15 in)

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 ESTOP	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, RH 95%, 48hours, without condensation
Protection degree	IP20
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.	

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	< 0.1 Ω

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	0.68 MΩ ph-ph , 0.34 MΩ ph-n
Measurement category CAT III, overvoltage category III	

E-Stop

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

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

Available external displays

Product	Description	Order code
InteliVision 5.2	5" TFT external display with 800x480 px resolution	RD2IV5BXBAA
InteliVision 10Touch	10.1" Touchscreen display uni with 1280 x 800 px resolution	RD1IV10TBPF
InteliVision 13Touch	13.3" Marine certified display unit with 1920 × 1080 px resolution	RD1IV13TBME
InteliVision 18	18.5" Touchscreen display unit with 1366 × 768 px resolution	RD31840PBIE

Available CAN modules

Product	Description	Order code
Inteli AIN8	8 Analog Input Channels and 1 RPM/Impulse Input Module	I-AIN8
Inteli AIN8TC	8 Analog Input Channels for termocouples measurement	I-AIN8TC
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	I-AIO9/1
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	4 Analog Inputs, 1 Analog Output, 8 Binary Inputs and 8 Binary Outputs	IGS-PTM
I-AOUT8	8 configurable analog outputs	I-AOUT8
IS-AIN8	8 configurable analog inputs	IS-AIN8
IS-AIN8TC	8 configurable analog inputs	IS-AIN8TC
IS-BIN16/8	16 galvanically separated inputs, 8 binary outputs, 2 pulse inputs	IS-BIN16/8
InteliFieldbus Gateway	Modbus TCP/RTU Communication gateway	CM1IFGATBBB
I-CR	CAN Repeater Module, compatible when using 32C/8C CAN Intercontroller Comm Mode	I-CR

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	Temperature monitoring	49T
Multi-function device	11	Overcurrent	50/50TD
Speed and frequency matching device	15	Overcurrent IDMT	51
Data communications device	16ECFM+16SC	AC circuit breaker	52
Synchronizing-check	25	Power factor	55
Thermal relay	26	Overvoltage	59
Undervoltage	27	Pressure switch	63
Annunciator	30	Liquid level switch	71
Overload	32	Alarm relay *	74
Load shedding	32P	Vector shift	78
Master sequence device	34	Reclosing relay	79
Undercurrent	37	Overfrequency	81H
Unit sequence starting	44	Underfrequency	81U
Current unbalance	46	ROCOF	81R
Voltage unbalance	47	Auto selective control/transfer	83
Incomplete sequence relay	48	Regulating device	90

* extension module IGL-RA15 required

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Certifications and standards

❯ EN 61000-6-2	❯ EN 60068-2-1 (-40 °C/16 h)	❯ UL6200
❯ EN 61000-6-4	❯ EN 60068-2-2 (70 °C/16 h)	
❯ EN 61010-1	❯ EN 60068-2-6 (2÷25 Hz / ±1,6 mm; 25÷100 Hz / 4,0 g)	
❯ EN 60255-1	❯ EN 60068-2-27 (a=500 m/s^2; T=6 ms)	
❯ EN 60529 (IP20)	❯ EN 60068-2-30 (25/55 °C, RH 95%, 48 h)	

Grid Codes

European Requirements for Generators, 2016/631

❯ German VDE-AR-N 4110:2018	❯ UK ENA EREC G99
❯ American IEEE 1547	❯ Austrian TOR

List of SW Key Features

SW Key Feature	Order Code
CAN bus redundancy	SKREDCAN201
Modbus client	SKMODBCLI01
PLC package	SKPLCPCKG01
Hot Swap Redundancy	SKHOTSWAP01

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

Unique identifier: IM31010XBBB

Responsible Party:

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USA

Tel: +420 246 012 111

E-mail: info@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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