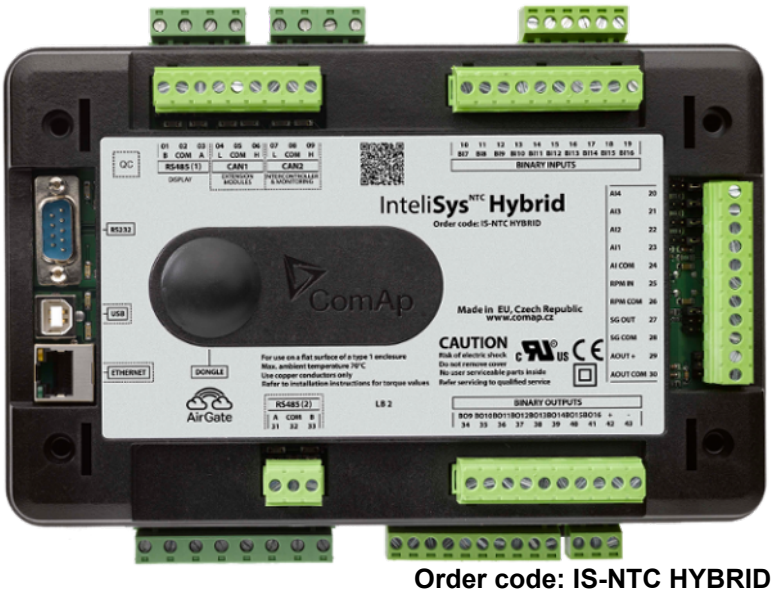
ComAp
The heart of smart control

InteliSys NTC Hybrid



Order code: IS-NTC HYBRID

PV/Diesel/BESS microgrid controller

Datasheet

Product description

InteliSys NTC Hybrid controller offers complex control of PV/Diesel/BESS hybrid applications (microgrids). It allows smooth integration of renewable energy to conventional power generation from reciprocating Gen-sets while maintaining high reliability, safety and efficiency of the site.

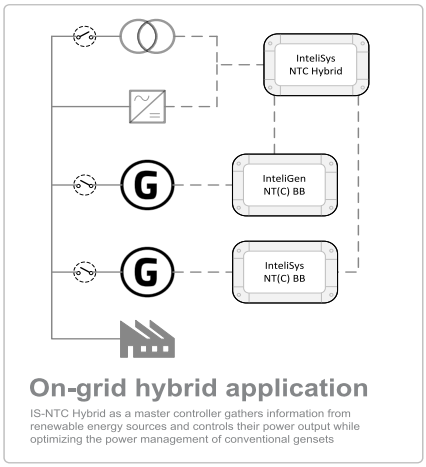
Key functions

- Modbus RTU/TCP**interface to multiple PV inverters and battery energy storage systems (BESS)
- Protection against Gen-set underloading
- Dynamic spinning reserve management for maximized fuel savings
- Support of up to 100% renewable energy penetration*

Key features

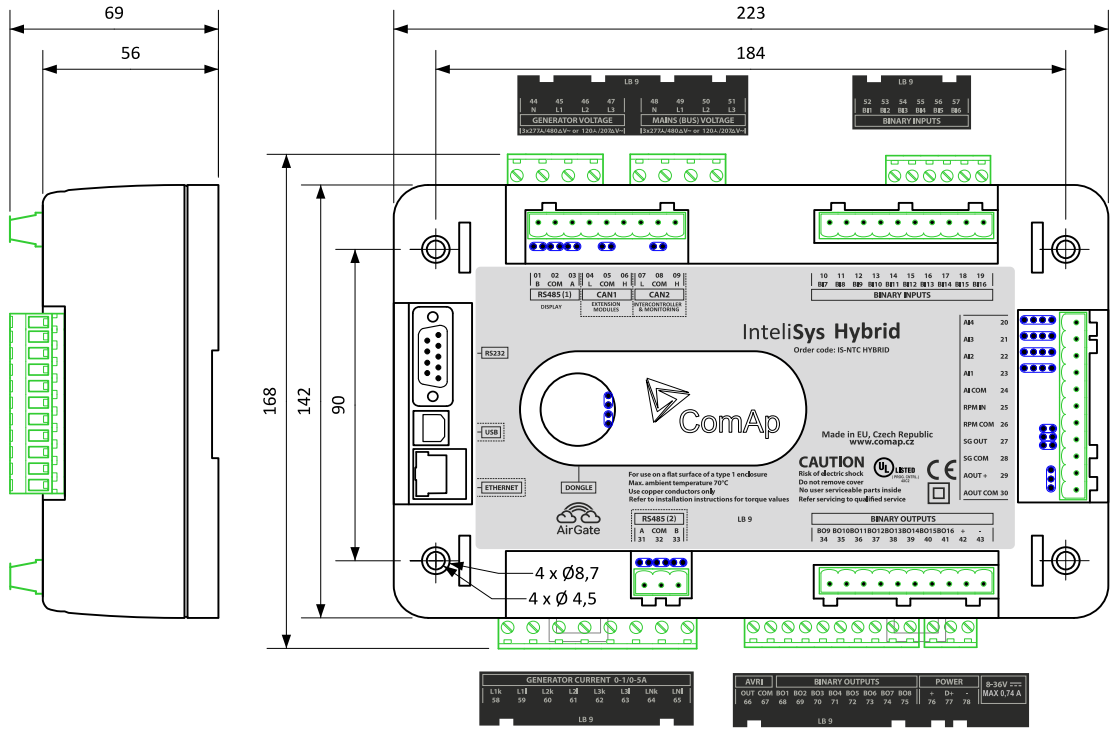
- Extensive flexibility due to built-in PLC
- Interface with various site components (PV inverters, BMS, Gen-set controllers, etc.)
- Smooth integration of renewable energy source(s) with Gen-set(s), energy storage systems and the grid
- Direct PV output power control (analog/digital or Modbus)
- Continuous monitoring and control of all energy sources (Actual power output from: PV, Gen-set, Battery and grid)
- Statistics of generated energy and fuel consumption
- Long term renewable energy penetration calculation
- Inputs and outputs configurable for various customer needs
- Interface to remote display units (InteliVision 8, InteliVision 5 RD, InteliVision 12Touch, InteliVision 18Touch)
- USB 2.0 slave interface
- Ethernet, Modbus and CAN communication
- Pre mortem history (50 records)
- Event-based history (up to 4000 records)
- 160 additional programmable protections

Application overview

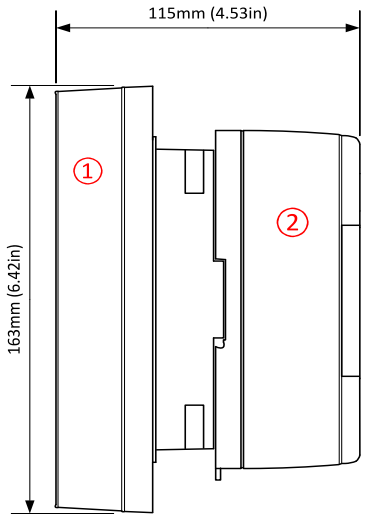


*if energy storage or weather prediction system is used
**In combination with InteliFieldbus Gateway

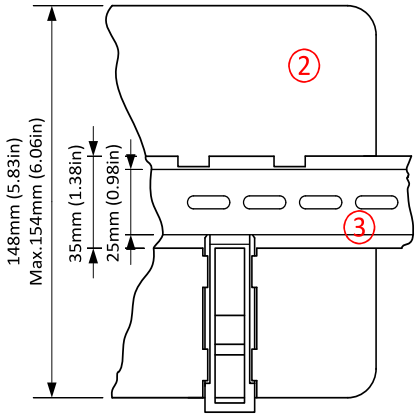
Dimensions, terminals and mounting



Panel door mounting with InteliVision 5

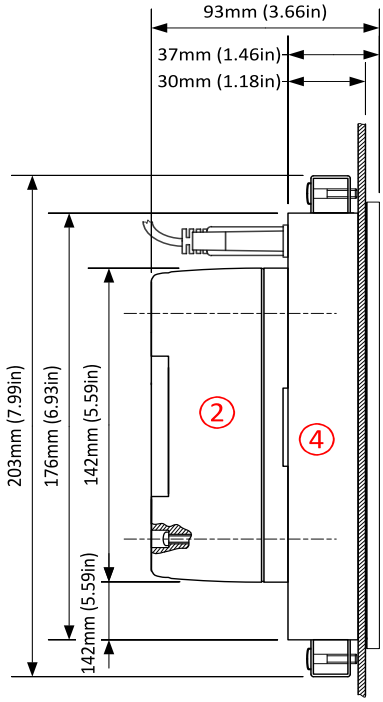


DIN-rail mounting



① InteliVision5
② InteliSys^{NTC} Hybrid
③ DIN-rail
④ InteliVision 8

Panel door mounting with InteliVision 8



Note: *InteliSys^{NTC} Hybrid can be mounted on a standard DIN rail or, in combination with InteliVision 5 or InteliVision 8, it can be door mounted. InteliVision 5 features mounting rail for direct mounting. Mounting in combination with InteliVision 8 uses four screws provided in the InteliSys^{NTC} Hybrid package.*

Technical data

Power supply

Power supply range	8-36 V DC
Power supply drop-out immunity	20 ms (from 8 V)
Power consumption	0.4 A / 8 VDC 0.15 A / 24 VDC 0.1 A / 36 VDC
RTC battery	10 years (replaceable by official service)
Fusing	2 A (without BOUT consumption)
Max. Power Dissipation	16 W

Operating conditions

Operating temperature	-40 ˚C to +70 ˚C
Storage temperature	-40 ˚C to +80 ˚C
Max. operating altitude	2000 m above sea level for max 480 V 4000 m above sea level for max Ph-Ph voltage 400 V
Operating humidity	95 % non-condensing (EN 60068-2-30)
Vibration	5-25 Hz, ± 1.6 mm 25-100 Hz, a = 4 g
Shocks	a=200 m/s^2
Heat radiation	16 W

Voltage measurement

Measurement inputs	3 ph-n Gen voltage 3 ph-n Mains voltage/Bus voltage
Measurement range	110V / 277V
Max allowed voltage	125 % ph-n
Accuracy	1 % of 110V / 277V
Frequency range	40-70 Hz (at accuracy 0.1 Hz) 45-55 Hz (accuracy <0.01 Hz)
Input impedance	0.6 MΩ ph-ph, 0.3 MΩ ph-n

Current measurement

Measurement inputs	3 ph Mains current 1 ph Bus current galvanically isolated
Measurement range	1A / 5A
Max allowed continuous current	1000% / 200%
Accuracy	2 % of 1A / 5A
Input impedance	<0.1 Ω

Binary inputs

Number	16, non-isolated
Input resistance	4.7 kΩ
Close/Open indication	0-2 V DC close contact >4 V DC open contact

Binary outputs

Number	16, non-isolated
Max current	0.5 A (2 A per group) group1: BO1-8; group2: BO9-BO16
Switching to	Negative/positive supply terminal

Analog inputs

Number	4, non-isolated
Type	Switchable (Voltage, Resistance, Current)
Resolution	10 bits, max 4 decimals
Range	0-5 V DC / 0-2500 Ω / 0-20 mA
Input impedance	>100 kΩ / >100 kΩ / 180 Ω
Accuracy	±1 % of meas. value ±5 mV ±2 % of meas value ±2 Ω ±1 % of meas value ±0.5 mA

Analog outputs

Number	1
Type	Switchable (Voltage, Current)
Range	0-10 V DC / 0-20 mA
Max current/load	5 mA / 500 Ω
Accuracy	±0.5 % of output value ±20 mV ±0.5 % of output value ±100 µA

Communications

RS232	Direct / Modbus, non-isolated
RS485(1)	Display port, Direct / Modbus, non-isolated
RS485(2)	Direct / Modbus, isolated
Display port	Non-isolated RS485, direct/modbus/terminal connection
USB port	Direct, Isolated
Ethernet port	galvanically isolated LAN/Internet, Modbus TCP, SNMP, WebServer, AirGate
CAN1	External modules, 250kbps, max 200 m, Isolated
CAN2	Intercontroller and comm extensions 250 / 50 kbps, max 200 / 1000 m, Isolated

Available Extension modules

Product	Description	Order code
Inteli IO8/8	8 Binary inputs, 8 Binary outputs and 2 Analog outputs packed in a small unit (HW switchable to IO16/0)	I-IO8/8
Inteli IO8/8	HW switchable to IO16/0 - 16 Binary inputs packed in a small unit	I-IO8/8
Inteli AIN8	8 Analog inputs (R, I, V) and 1 pulse / frequency input in a small unit	I-AIN8
Inteli AIN8TC	8 Thermocouple Analog inputs in a small unit	I-AIN8TC
Inteli AIO9/1	9 Analog inputs (4x DC, 4x thermocouples, 1x R) in a small unit	I-AIO9/1
IS-AIN8	8 Analog inputs packed in a rugged metal unit	IS-AIN8
IGS-PTM	8 Binary inputs, 8 Binary outputs, 4 Analog inputs and 1 Analog output in a unit	IGS-PTM
IGL-RA15	15 Binary LED output (3 colors) packed in a rugged metal unit	IGL-RA15
I-AOUT8	8 Analog outputs packed in a rugged metal unit	I-AOUT8
InternetBridge-NT	Multiple Internet connections (PC and Modbus) to all controllers on CAN2 or RS485	IB-NT
I-LB+	Direct connection (PC) to all controllers on CAN2 or RS485	I-LB+
InteliFieldbus Gateway	Versatile programmable interface unit between InteliSys Hybrid controller and any Modbus TCP/RTU device	CM1IFGATBBB

Related products

Product	Description	Order code
InteliVision 5	Color 5.6" display for monitoring and control	INTELIVISION 5
InteliVision 8	Color 8" display for advanced monitoring, control & trending, USB capable	INTELIVISION 8
InteliVision 12Touch	Color 12" touch display for advanced monitoring, control & trending, USB capable	RD1IV12TBZH
InteliVision 18Touch	Color 18“ touchscreen display designed for complete monitoring and control of multiple controllers or cogeneration installation.	RD31840PBIE

Functions and protections

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

Description	ANSI code	Descritption	ANSI code	Descritption	ANSI code
Synchronism check	25	Temperature monitoring	49T	AC reclosing	79
Undervoltage	27	Overcurrent	50	Overfrequency	81H
Overload	32	Overcurrent (IDMT)	51	Underfrequency	81L
Load shedding	32P	Power factor	55	ROCOF	81R
Undercurrent	37	Overvoltage	59		
Current unbalance	46	Vector shift	78		

Certificates and standards

This product is CE compliant.

- EN 60068-2-6 ed.2:2008
- EN 60068-2-27 ed.2:2010
- EN 60068-2-30:2005 25/55°C, RH 95%, 48hours
- EN 60068-2-64
- EN 61010-1:2003

ComAp
The heart of smart control

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