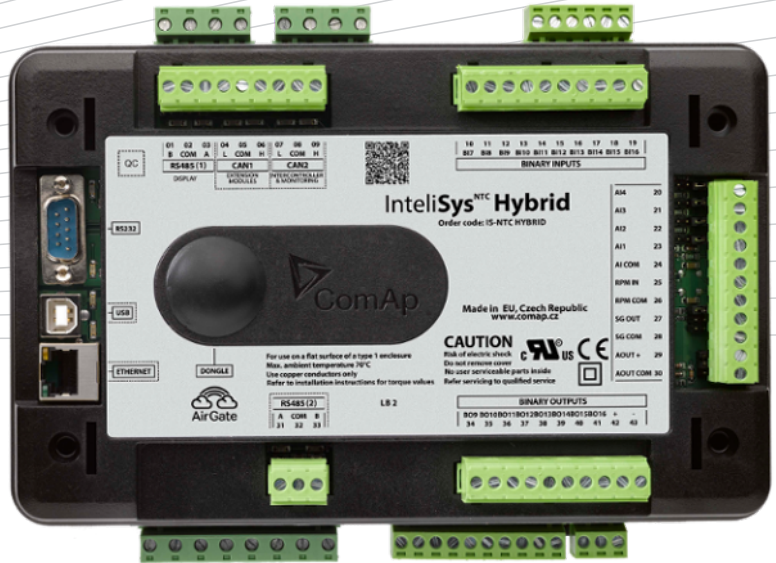


InteliSys^{NTC} Hybrid



Order code: IS-NTC HYBRID

PV/Diesel microgrid controller

Datasheet

Product description

InteliSys^{NTC} Hybrid controller offers complex control of PV/Diesel 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

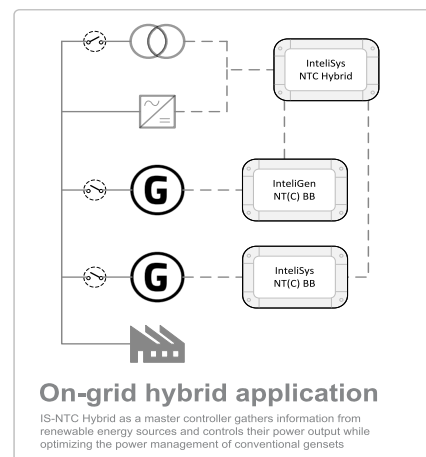
- ▶ Modbus RTU/TCP**interface to multiple PV inverters
- ▶ Protection against gen-set underloading
- ▶ Dynamic spinning reserve management for maximized fuel savings
- ▶ Support of up to 100% renewable energy penetration*

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 genset(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, Genset, 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 17Touch)
- ▶ 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: UC-7112-LX Plus

Technical data

Power supply

Power supply range	8-36 V DC
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 4000 m above sea level for max Ph-Ph voltage 400V AC
Operating humidity	95 % w/o condensation
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	0.1 % of 110V / 277V
Frequency range	40-70 Hz (at accuracy 0.1 Hz) 45-55 Hz (accuracy <0.01 Hz)
Input impedance	0.6 M Ω ph-ph, 0.3 M Ω ph-n

Current measurement

Measurement inputs	3 ph Gen current 1 ph Mains current
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 k Ω
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)
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 k Ω / >100 k Ω / 180 Ω
Accuracy	± 1 % of meas. value ± 5 mV ± 2 % of meas value ± 2 Ω ± 1 % of meas value ± 0.5 mA

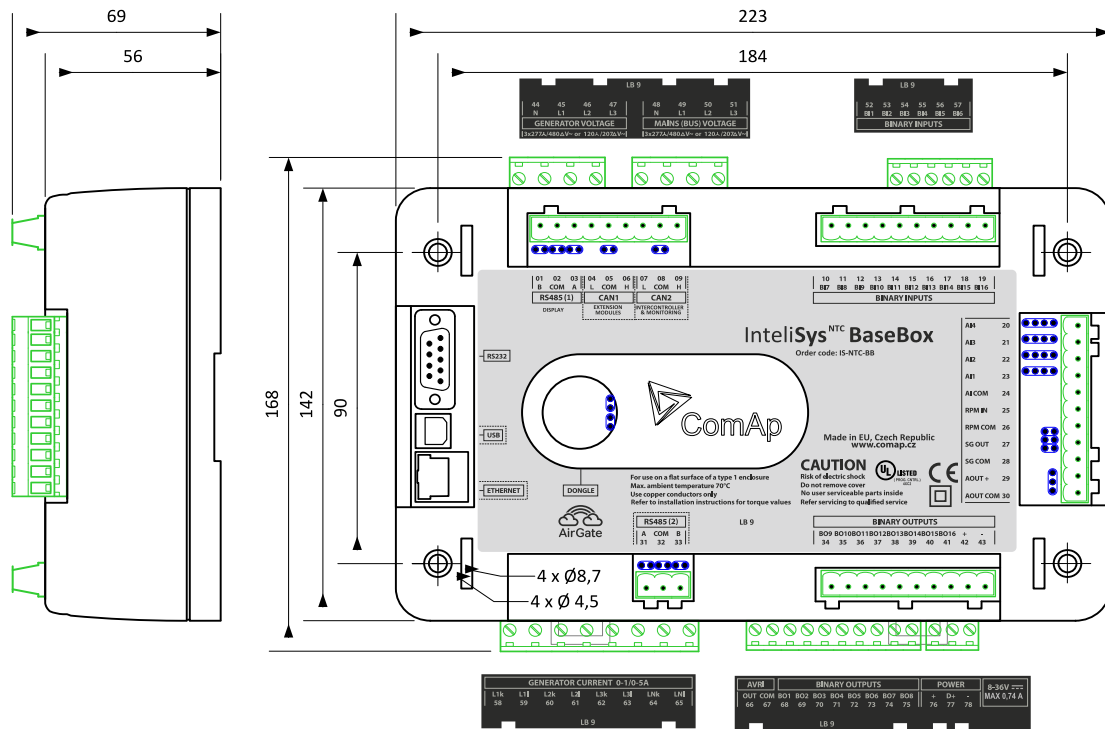
Analog outputs

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 μ A

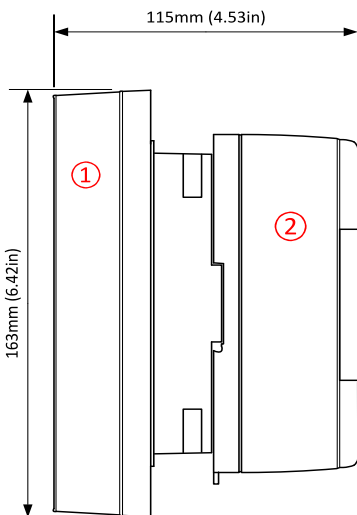
Communications

RS232	Direct / Modbus, non-isolated
RS485	Direct / Modbus, isolated
Display port	Non-isolated RS485, direct/modbus/terminal connection
USB port	Direct, Isolated
Ethernet port	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

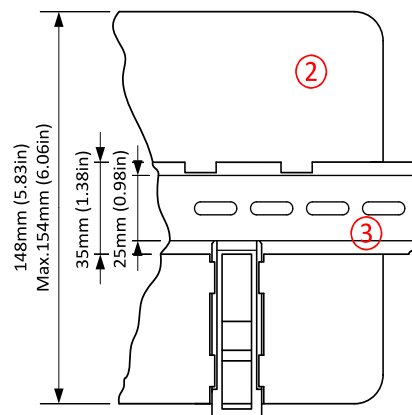
Dimensions, terminals and mounting



Panel door mounting with IntelliVision 5

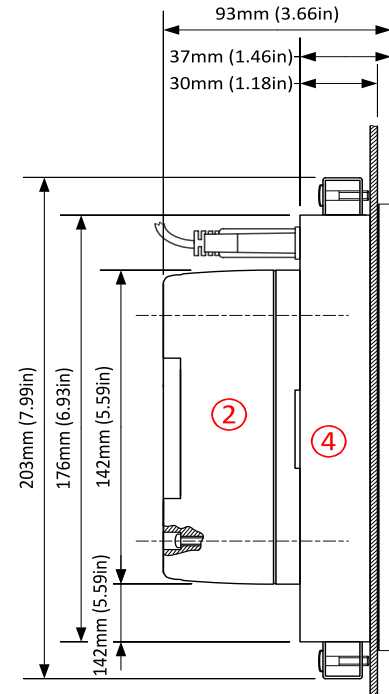


DIN-rail mounting



- ① IntelliVision5
- ② IntelIGen^{NT}-BaseBox 400 Hz
- ③ DIN-rail
- ④ IntelliVision 8

Panel door mounting with IntelliVision 8



Note: IntelIGen^{NT} BaseBox 400 Hz can be mounted on a standard DIN rail or, in combination with IntelliVision 5 or IntelliVision 8, it can be door mounted. IntelliVision 5 features mounting rail for direct mounting. Mounting in combination with IntelliVision 8 uses four screws provided in the IntelIGen^{NT} BaseBox 400 Hz package.

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+
UC-7112-LX Plus	Communication gateway	CM17112LBGB

Related products

Product	Description	Order code
InteliVision 5	Color 5.6" display for monitoring and control	INTELVISION 5
InteliVision 8	Color 8" display for advanced monitoring, control & trending, USB capable	INTELVISION 8
InteliVision 12Touch	Color 12" touch display for advanced monitoring, control & trending, USB capable	RD1IV12TBZH
InteliVision 17Touch	Color 17" touchscreen display designed for complete monitoring and control of multiple controllers or cogeneration installation.	IV17T2

Functions and protections

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

Description	ANSI code	Description	ANSI code	Description	ANSI code
Synchronism check	25	Voltage asymmetry and phase sequence	47	Vector shift	78
Undervoltage	27	Temperature monitoring	49T	AC reclosing	79
Overload	32	Overcurrent	50	Overfrequency	81H
Load shedding	32P	Overcurrent (IDMT)	51	Underfrequency	81L
Undercurrent	37	Power factor	55	ROCOF	81R
Current unbalance	46	Overvoltage	59		

Certificates and standards

This product is CE compliant.	
<ul style="list-style-type: none"> ▶ EN 60068-2-6 ed.2:2008 ▶ EN 60068-2-27 ed.2:2010 ▶ EN 60068-2-30, May 2000 ▶ EN 60068-2-64 ▶ EN 61010-1:2003 	