

InteliVision 5 InteliVision 5 RD

CONTROLLER COLOUR DISPLAY UNIT



InteliVision 5



Plug and play interface



Front IP65



ScreenEditor



Short distance



Tier 4



Configurable soft keys



InteliVision 5 RD



Galvanically separated RS-485 interface



Plug and play interface



Front IP65



ScreenEditor



Long distance



Tier 4



Configurable soft keys



Backlit dimming analog input



Binary output



Internal buzzer



Backlit

Description

InteliVision 5 and InteliVision 5 RD – new generation colour display panels compatible with the following product line of controllers:

- ▷ InteliGen^{NT}
- ▷ InteliSys^{NT}
- ▷ InteliMains^{NT}

There are two versions available:

- ▷ InteliVision 5 – for localized visualisation and intended for shorter distances (up to 2 meters) from the controller
- ▷ InteliVision 5 RD – for remote visualisation and intended for longer distances (up to 1000 meters) from the controller

They are designed as a simple, easy to use Plug and play solution.

Order codes

Product	Order code
InteliVision 5	INTELVISION 5
InteliVision 5 RD	INTELVISION 5 RD



ComAp is a member of AMPS (The Association of Manufacturers of Power generating Systems).



ComAp products meet the highest standards, with every stage of production undertaken in accordance with the ISO certification obtained in 1998.



The product has the UL Certification.

Benefits

- ▶ Plug and play operation (auto configuration based on controller application)
- ▶ Simple, fast and intuitive control
- ▶ Easy drag and drop screen configuration in graphical editor
- ▶ Fast access to important data
- ▶ Five configurable soft keys:
 - Fast skip to any screen
 - Binary signal activation – S/R button / toggle button / pulse generator
 - Association to various Genset commands
- ▶ Support of Tier 4 icons
- ▶ Mounting screw available at the rear face of IntelliVision 5 to mount a compatible controller
- ▶ Same language support as the controller including graphic languages

Features

- ▶ 5,7" Colour TFT display with resolution 320 x 240 pixels
- ▶ Local display intended for shorter distances (up to 2 meters)¹⁾
- ▶ Remote display intended for longer distances (up to 1000 meters)²⁾
- ▶ Direct connection to the controller (converters are not needed)
- ▶ Communication connection via RS-485¹⁾
- ▶ Communication connection via galvanic separation of RS-485²⁾
- ▶ Same cut out as IntelliGen^{NT}
- ▶ Backlit buttons²⁾
- ▶ Equipped with internal buzzer²⁾
- ▶ Binary output for external horn/buzzer control²⁾
- ▶ Analog input to control backlit intensity²⁾
- ▶ Operating temperature: -40 to +70°C
- ▶ Face is sealed to IP65
- ▶ EMC, climatic and mechanical tests
- ▶ CE, UL certification

KEY

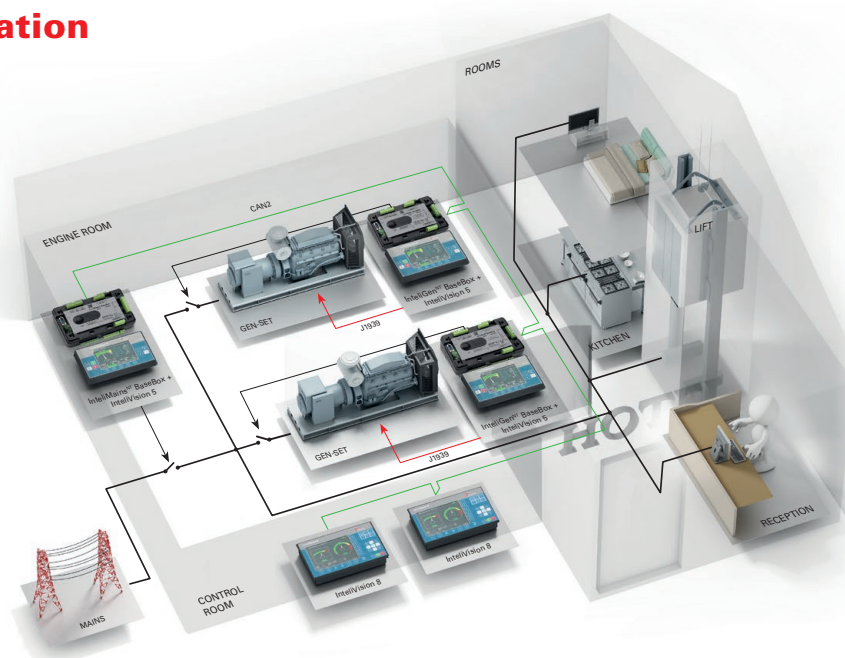
¹⁾ Only for IntelliVision 5

²⁾ Only for IntelliVision 5 RD

Function Overview of IntelliVision 5 and IntelliVision 5 RD

	RS-485 isolated	Distance [m]	Binary output	Analog input	Backlit (display buttons)	Protected IP	Internal buzzer
IntelliVision 5	No	2	No	No	No	IP-65 (face)	No
IntelliVision 5 RD	Yes	1000	Yes	Yes	Yes	IP-65 (face)	Yes

Typical application



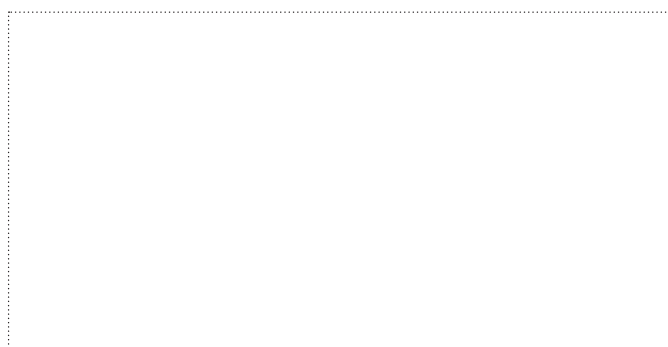
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Customer satisfaction is our mission. We continuously develop our people to be the best to succeed in our mission.

InteliGen^{NTC} BaseBox

GENERAL PURPOSE GEN-SET
CONTROLLER WITH DETACHABLE
COLOUR DISPLAY



Description

InteliGen^{NTC} BaseBox is a comprehensive controller for both single and multiple gen-sets operating in standby or parallel modes. The detachable modular construction allows easy installation with the potential for many different extension modules designed to suit individual customer requirements.

A built-in synchronizer and digital isochronous load sharer allow a total integrated solution for gen-sets in standby, island parallel or mains parallel with native cooperation of up to 32 gen-sets.

InteliGen^{NTC} BaseBox supports many standard ECU types and is specially designed to easily integrate new versions.

New ethernet connections together with AirGate make remote internet connection to new InteliGen^{NTC} BaseBox easy.

After registration of InteliGen^{NTC} BaseBox on our website you can simply monitor the site on the internet using WebSupervisor.

The controller is available in two models: InteliGen^{NT} BaseBox and InteliGen^{NTC} BaseBox

InteliGen^{NTC} BaseBox or InteliGen^{NT} BaseBox can be connected with Intelivision 5 and/or other ComAp displays.

Benefits

- ▶ Support of engines with ECU (Electronic Control Unit)
- ▶ Excellent configurability to match customers' needs exactly
- ▶ Complete integrated gen-set solution and signal sharing via CAN bus – minimum external components needed
- ▶ Many communication options – easy remote supervising and servicing
- ▶ Gen-set performance log for easy problem tracing
- ▶ Built-in PLC functions
- ▶ 5,7" colour TFT display ¹⁾
- ▶ Active buttons – fast access to important data ¹⁾
- ▶ Backlit buttons ²⁾

1) It is concerned in connection with Intelivision 5
2) It is concerned in connection with Intelivision 5 RD



WebSupervisor
The WebSupervisor system, a secure web based remote monitoring system which allows equipment fitted with various types ComAp units to be monitored via the internet from a remote PC or other web enabled device such as smartphone, webbook, etc. It operates in any internet browser and needs no special software to be installed. User can view recorded data from their equipment, receive Email alerts on alarms and control the remote units. Dedicated App's for iPhone and Android provide a truly mobile constant connection with the monitored equipment.



LOCATE
ComAp's LOCATE system uses the power of cellular communications technology to provide users and peace of mind that the monitored asset is where it should be. Locate provides location data to the WebSupervisor system without the need for costly GPS positioning equipment and works anywhere there is a cellphone signal, even indoors. Not only will WebSupervisor show the position of the monitored equipment, it will also maintain a track history and show route of the movement on a map.
LOCATE – Simply Here!



AirGate
Modern communications made simple. ComAp's powerful AirGate technology is provided in a range of our controllers and makes remote internet connection to the ComAp controller easy. Just register the AirGate enabled controller on our website and from then on let ComAp's unique system locate and maintain contact with the controller, no need to worry about VPN's, Static IP addresses or corporate firewalls, simple! "AirGate – Simply connected."



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Manufacturers of Power
generating Systems).



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highest standards, with every
stage of production undertaken
in accordance with the ISO
certification obtained in 1998.



Features

- ▷ Support of engines with ECU (J1939, Modbus and other proprietary interfaces); alarm codes displayed in text form
- ▷ AMF function
- ▷ Automatic synchronizing and power control (via speed governor or ECU)
- ▷ Baseload, Import / Export
- ▷ Peak shaving
- ▷ Voltage and PF control (AVR)
- ▷ Generator measurement: U, I, Hz, kW, kVA, PF, kWh, kVAh
- ▷ Mains measurement: U, I, Hz, kW, kVA, PF
- ▷ Selectable measurement ranges for AC voltages and currents – 120 / 277 V, 0–1 / 0–5 A¹⁾
- ▷ Inputs and outputs configurable for various customer needs
- ▷ Bipolar binary outputs – possibility to use BO as High or Low side switch
- ▷ RS232 / RS485 interface with Modbus support; Analog / GSM / ISDN / CDMA modem support; SMS messages; ECU Modbus interface
- ▷ Secondary isolated RS485 interface¹⁾
- ▷ Ethernet connection (RJ45)¹⁾
- ▷ USB 2.0 slave interface¹⁾
- ▷ Controller redundancy
- ▷ Event-based history (up to 1000 records) with customer-selectable list of stored values; RTC; statistic values
- ▷ Integrated PLC programmable functions
- ▷ Interface to remote display unit (InteliVision 5 RD)
- ▷ DIN-Rail mount

1) Available only for InteliGen^{NTC} BaseBox model

Order codes

Product	Order code
InteliGen ^{NT} BaseBox	IG-NT-BB
InteliGen ^{NTC} BaseBox	IG-NTC-BB

Integrated fixed and configurable protections

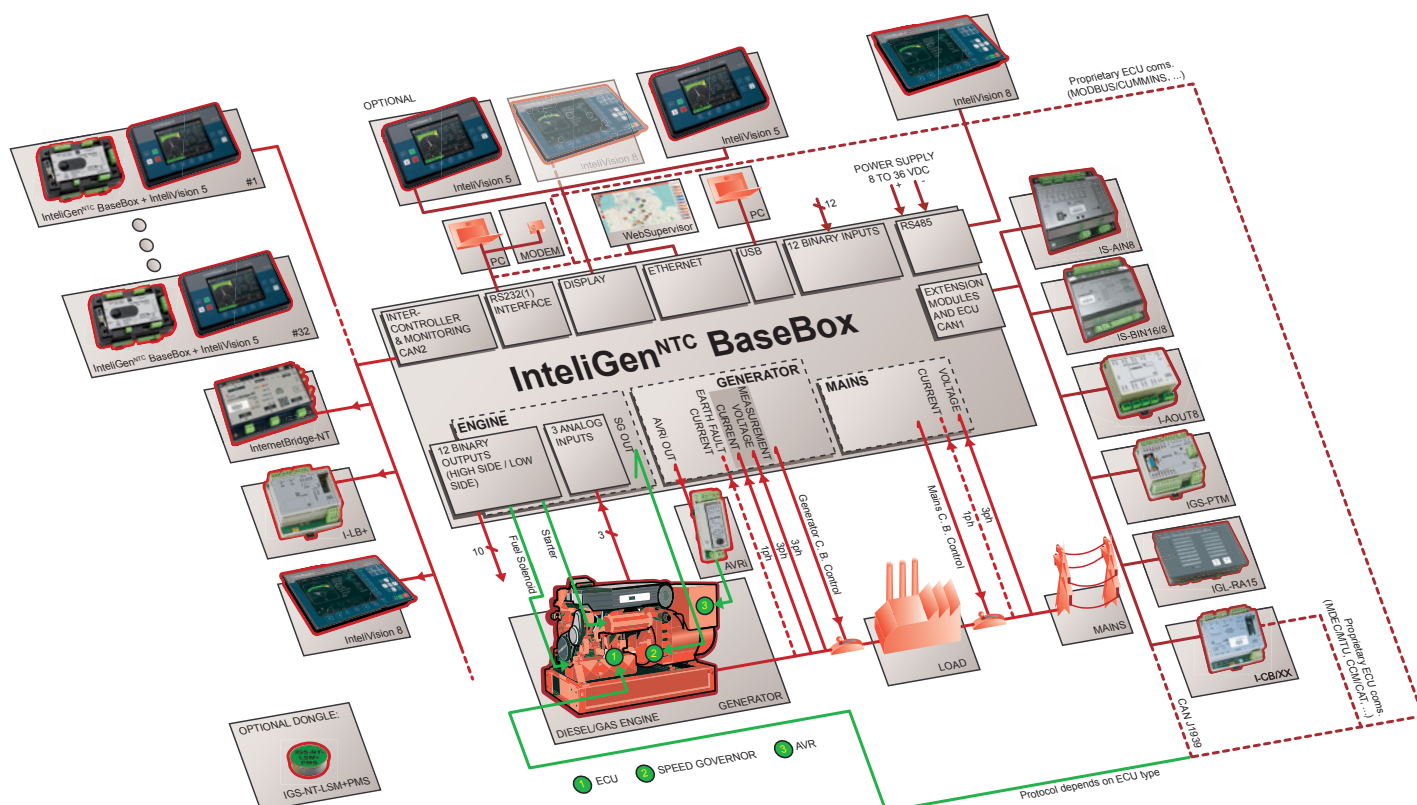
- ▷ 3 phase integrated generator protections (U + f)
- ▷ IDMT overcurrent + Shortcurrent protection
- ▷ Overload protection
- ▷ Reverse power protection
- ▷ Instantaneous and IDMT earth fault current
- ▷ 3 phase integrated mains protections (U + f)
- ▷ Vector shift and ROCOF protection
- ▷ All binary / analog inputs free configurable for various protection types: HistRecOnly / Alarm Only / Alarm + History indication / Warning / Off load / Slow stop / BreakerOpen&Cooldown / Shutdown / Shutdown override / Mains protect / Sensor fail
- ▷ Phase rotation and phase sequence protection
- ▷ Additional 160 programmable protections configurable for any measured value to create customer-specific protections
- ▷ Application security

ANSI CODES

ANSI code	Protection	ANSI code	Protection
25	Synchronism check	50N+64	Earth fault current *
27	Undervoltage	51	Generator overcurrent, IDMT
32	Overload	51N+64	Earth fault current, IDMT
32P	Load shedding	55	Power factor *
32R	Reverse power	59	Overvoltage
37	Undercurrent *	71	Gas (fuel) level
40	Excitation loss	78	Vectorshift
46	Generator current unbalance	79	AC Reclosing
47	Voltage asymmetry and phase sequence	81H	Generator overfrequency
49T	Temperature monitoring *	81L	Generator underfrequency
50	Generator short current	81R	ROCOF

* can be created using universal protections

Schematic diagram



Upgrade kits

- ▷ **IGS-NT-LSM + PMS dongle:**
 - Enables Multiple isolated parallel or multiple parallel with mains
 - Optimizing number of running engines: Power management; kW, kVA or % load based
 - Digital Load Sharing
 - Digital VAr Sharing

Extension modules

- ▷ up to 4x **I-AOUT8** – Analog output extension module
- ▷ up to 2x **IGL-RA15** – Remote annunciator
- ▷ up to 4x **IGS-PTM** – Analog/binary input/output module
- ▷ up to 10x **IS-AIN8** – Analog input module
- ▷ up to 6x **IS-BIN16/8** – Binary input/output module
- ▷ up to 10x **IS-AIN8TC** – Module for thermocouple measurement

Typical application

STANDBY SYSTEM WITH LOAD SHEDDING – ADVANCED DISPLAYS

Description:

- ▷ Containerized rental gen-sets are deployed as temporary and mobile power generation units providing essential energy for subsystems and construction machinery on building projects or civil engineering applications where mains power is not available or has been manually disconnected.
- ▷ The application shows rental gen-sets fitted with the latest remote communication module InternetBridge-NT which enables the central control facility and mobile service engineers to efficiently monitor, control and supervise equipment wherever it is located. By using the supportive web based software applications such as WebSupervisor, rental operators can significantly improve operational control.

- ▷ Each gen-set can be used in Stand-by, Single parallel to mains and Multiple parallel modes according to the position of Mode selector switch.
- ▷ Load sharing and VAr sharing can be conditionally switched from isochronous regulation to droop. It ensures reliable operation in case of cut off the CAN intercontroller communication line or cooperation with the gen-sets equipped with third-party control system.

Scope of supply:

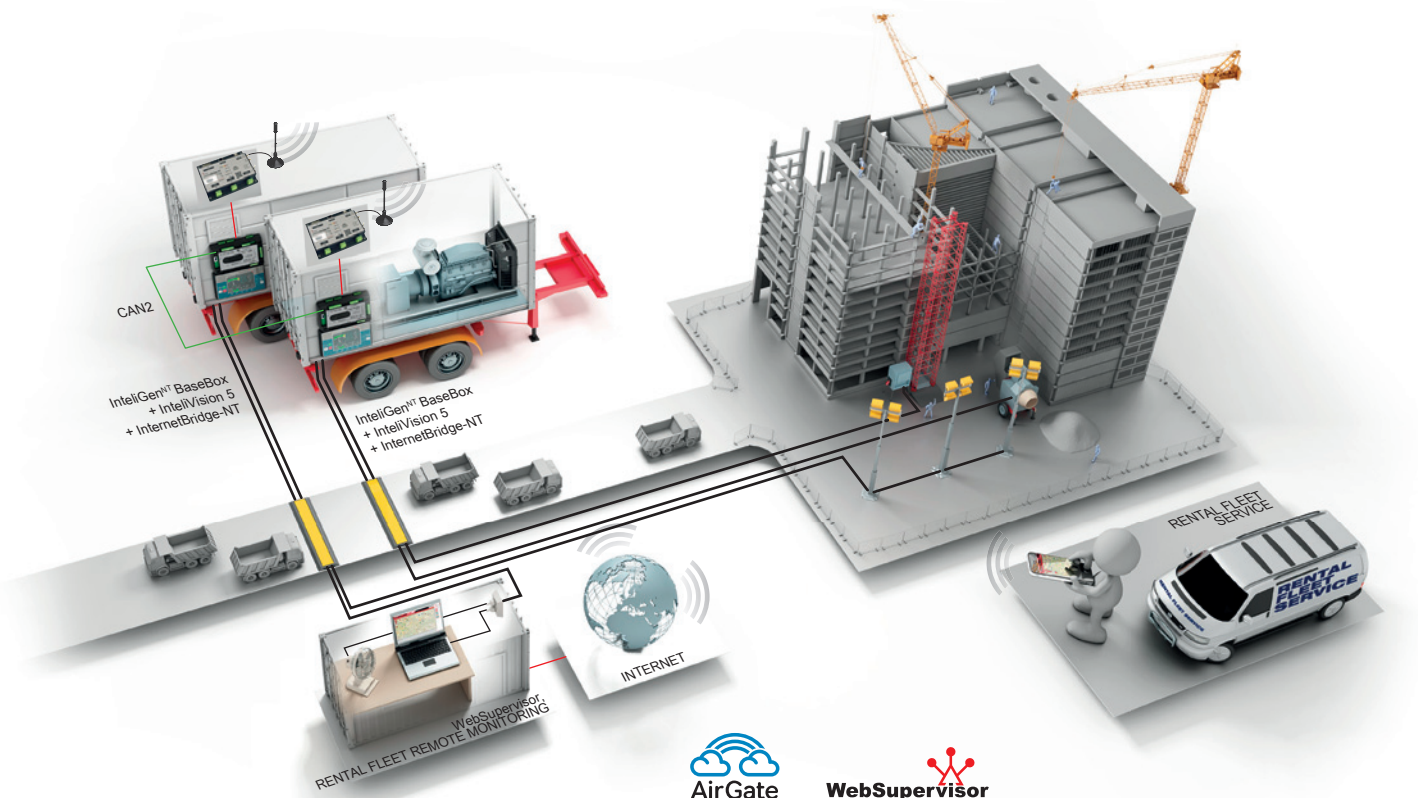
- ▷ 2x IntelGen^{NT} BaseBox
- ▷ 2x IntelliVision 5
- ▷ 2x InternetBridge-NT

Communication modules and PC tools

- ▷ **InternetBridge-NT** – Communication module with cellular/ethernet connection
- ▷ **I-LB+** – Local bridge supporting USB communication
- ▷ **I-CB** – ECU communication bridge
- ▷ **WinScope** – Special graphical controllers' monitoring software
- ▷ **WebSupervisor** – Cloud-based system for monitoring and controlling of ComAp controllers
- ▷ **GenConfig** – PC configuration tool
- ▷ **InteliMonitor** – PC monitoring tool

Remote displays

- ▷ up to 2x **InteliVision 5** – New generation 5,7" colour display unit
- ▷ up to 2x **InteliVision 5 RD** – New generation 5,7" remote colour display unit
- ▷ up to 6x **InteliVision 8** – 8" colour detachable display unit
- ▷ **InteliVision 17Touch** – Colour touch 17" display



Functions chart

Product	InteliGen ^{NT}	InteliGen ^{NT} BaseBox	InteliGen ^{NTC} BaseBox	InteliSys ^{NTC} BaseBox
Order code	IG-NT	IG-NT-BB	IG-NTC-BB	IS-NTC-BB
Binary Inputs / Outputs	12/12 (108/108) ¹⁾	12/12 (108/108) ¹⁾	12/12 (108/108) ¹⁾	16/16 (112/112) ¹⁾
Analog Inputs/Outputs	3/0 (83/32) ¹⁾ (configurable as tristate)	3/0 (83/32) ¹⁾ (configurable as tristate)	3/0 (83/32) ¹⁾ (configurable as tristate)	4/1 (84/33) ¹⁾ (configurable as tristate)
AMF function	●	●	●	●
GCB control with feedback	●	●	●	●
Integrated PLC	Standard	Standard	Standard	Extended
Input configuration	●	●	●	●
Output configuration	●	●	●	●
Voltage measurement Gen / Mains (bus)	3 ph / 3 ph 277V	3 ph / 3 ph 277V	3 ph / 3 ph 120V / 277V	3 ph / 3 ph 120V / 277V
Current measurement	3ph + 1 / 6w IDMT overcurrent 5A	3ph + 1 / 6w IDMT overcurrent 5A	3ph + 1 / 6w IDMT overcurrent 1A / 5A	3ph + 1 / 6w IDMT overcurrent 1A / 5A
kW / kWh / kVA measurement	● / ● / ●	● / ● / ●	● / ● / ●	● / ● / ●
Communication interfaces	CAN1, CAN2, RS232, RS485, Ethernet ²⁾ , Modbus	CAN1, CAN2, RS232, RS485, Ethernet ²⁾ , Modbus	CAN1, CAN2, RS232, 2x RS485, USB, Ethernet, Modbus, Modbus TCP, AirGate, Web server	CAN1, CAN2, RS232, 2x RS485, USB, Ethernet, Modbus, Modbus TCP, AirGate, Web server
ECU support	●	●	●	●
Active call / SMS support	●	●	●	●
Forward / Reverse synchronizing / Mains parallel operation	● / ● / ●	● / ● / ●	● / ● / ●	● / ● / ●
Multiple operation / Power Management System	● ³⁾	● ³⁾	● ³⁾	● ³⁾
Display	LCD 128x64	External	External	External
History (max records) ⁴⁾	500	1000	1000	4000

KEY

- included
- CAN1 for peripheral modules and ECU (J1939)
- CAN2 intercontroller can; monitoring

¹⁾ with IS-AIN8, IS-AIN8TC, IS-BIN16/8, I-OUT8 or IGS-PTM

²⁾ with communication modules

³⁾ with IGS-NT-LSM+PMS dongle

⁴⁾ depends on number of values in history record

References

Singapore



F1 Singapore Grand Prix

The race was illuminated by twenty-four individual 500 kVA generators, powering 1500 special lighting rigs. To control all this power the experienced team carefully considered all available systems on the market and chose ComAp's InteliGen^{NTC} BaseBox and InteliVision 8 combination. An event of this magnitude doesn't just need lighting. Beyond the track 12 further 50 kVA, InteliLite NT AMF 25 controlled generators were used to supply the monitoring system along the track.



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InteliGen^{NTC} BaseBox

Gen-set controller



Datasheet

Product description

- Comprehensive paralleling gen-set controller
- Parallel operation up to 32 gen-sets
- High level control for complex systems

Key features

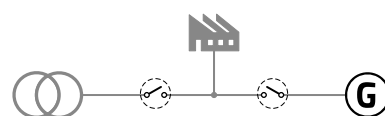
- Load sharing and VAr sharing via CAN
- Virtual shared inputs and outputs via CAN
- Support of wide range of applications
 - Single or multiple gen-sets in parallel to mains operation with automatic back up function, multiple island operation
- Advanced power management function
- Customizable load control in parallel to mains
- Wide range of ECU support
- Extended communication capabilities
 - Built-in web server
 - Full Modbus slave support
 - GPS and AirGate support and more
- Highly configurable
 - Timers, Internal PLC, Force values and more
- Compatible with ComAp's InteliVision displays
- Active e-mail messaging and SMS
- Extensive built-in protection functions
 - Standard protections
 - User configurable protection
- Extendable with ComAp's extension modules



Application overview

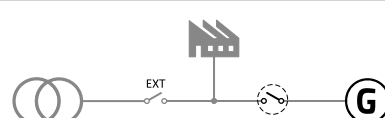
SPtM

Mains & Generator
Circuit Breaker



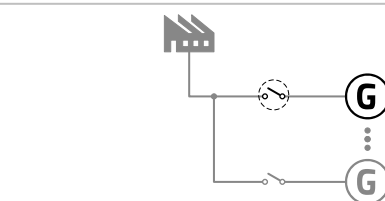
SPI

Generator Circuit
Breaker



MINT

Generator Circuit
Breaker



Technical data

Power supply

Power supply range	8-36 VDC
Power consumption	0.4A / 8VDC 0.15A / 24VDC 0.1A / 36VDC
RTC battery	10 years (replacable by official service)
Fusing	2A (without BOUT consumption)

Operating conditions

Operating temperature	-40°C to +70°C
Storage temperature	-40°C to +80°C
Operating humidity	95% w/o condensation
Vibration	5-25Hz, $\pm 1.6\text{mm}$ 25-100Hz, $a=4g$
Shocks	$a=200\text{m/s}^2$

Voltage measurement

Measurement inputs	3ph-n Gen voltage 3ph-n Mains/Bus voltage
Measurement range	110V/277V
Max allowed voltage	125%
Accuracy	1% of 110V/277V
Frequency range	40-70Hz (at accy 0.1Hz)
Input impedance	0.6M Ω ph-ph 0.3M Ω ph-n

Current measurement

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

Binary inputs

Number	12 non-isolated
Input resistance	4.7k Ω
Close/Open indication	0-2VDC close contact >4VDC open contact

Binary outputs

Number	12 non-isolated
Max current	0.5A (2A per group)
Switching to	negative/positive supply terminal

Analog inputs

Number	3 non-isolated
Type	Switchable (Voltage, Resistance, Current)
Resolution	10bits, max 4 decimals
Range	0-5VDC/0-2500 Ω /0-20mA
Input impedance	>100k Ω />100k Ω /180 Ω
Accuracy	$\pm 1\%$ of meas value $\pm 1\text{mV}$ $\pm 2\%$ of meas value $\pm 2\Omega$ $\pm 1\%$ of meas value $\pm 0.5\text{mA}$

Magnetic pick-up

Voltage input range	2 Vpk-pk to 50Veff
Frequency input range	4Hz to 15 kHz
Frequency measurement tolerance	0.2 %

Voltage regulator output

Type	5 V TTL PWM / ± 10 VDC with IG-AVRi interface
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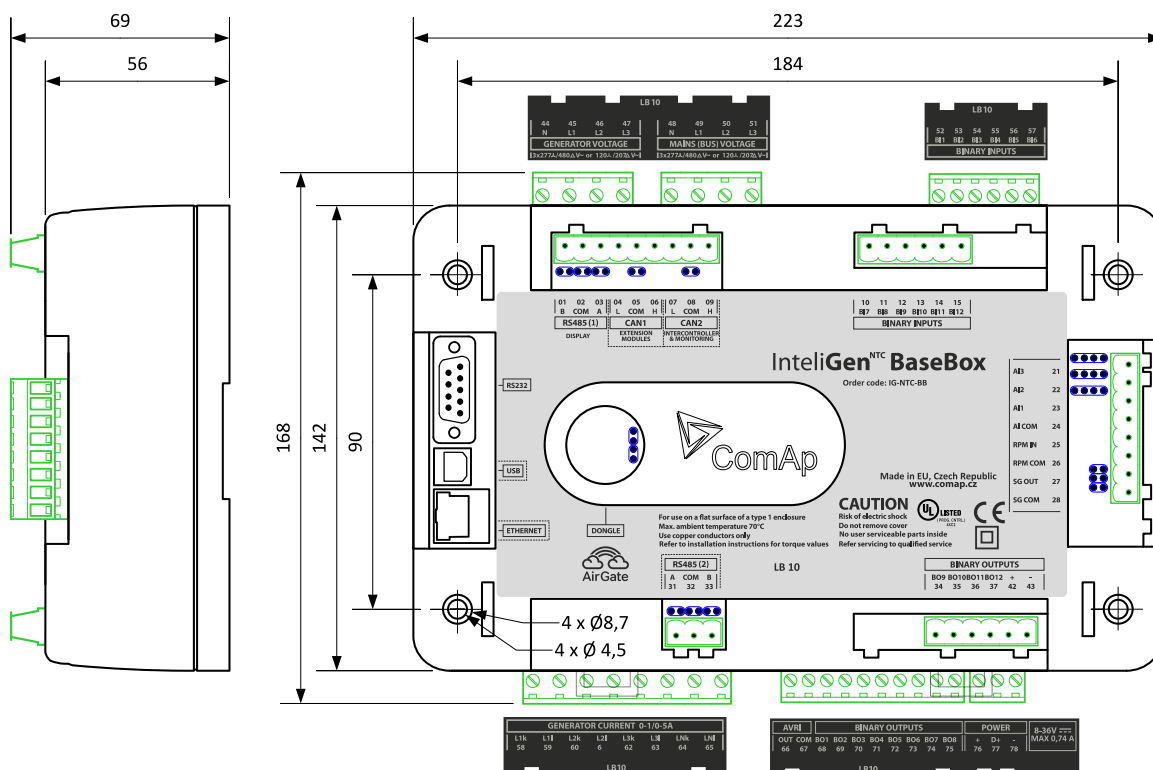
Speed governor outputoutput

Voltage output	± 10 VDC / max.15 mA
Voltage output via resistor	± 10 VDC via 10 k Ω resistor / max . 1 mA
PWM	500÷3000 Hz / 5V / max. 10mA

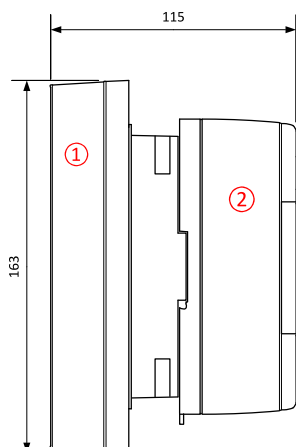
Communications

RS232	Direct/Modbus, non-isolated
RS485	Direct/Modbus, isolated
Display port	non-isolated RS485, only terminal connection
USB port	Direct, isolated
Ethernet port	LAN/Internet, Modbus TCP, SNMP, WebServer, Airgate
CAN1	External modules 250kbps, max 200m, Isolated
CAN2	Intercontroller and comm extensions 250/50kbps, max 200/1000m, Isolated

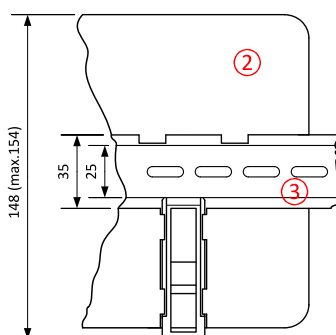
Dimensions, terminals and mounting



Panel door mounting with IntelliVision 5

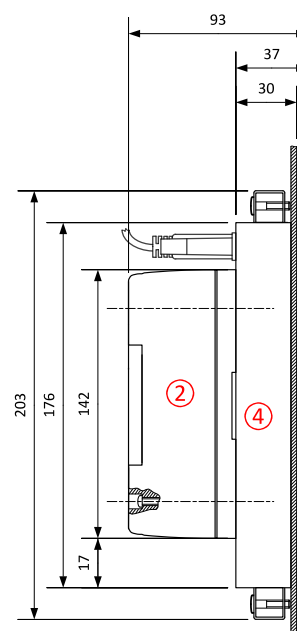


DIN-rail mounting



- ① IntelliVision5
- ② IntelliGen^{NTC} BaseBox
- ③ DIN-rail
- ④ IntelliVision 8

Panel door mounting with IntelliVision 8



Note: IntelliGen^{NTC} BaseBox 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 IntelliGen^{NTC} BaseBox package.

Available extension modules

Product	Description	Order code
Intel IO8/8	8 Binary inputs and 8 Binary outputs packed in a small unit (HW switchable to IO16/0)	I-IO8/8
Intel IO16/0	16 Binary inputs packed in a small unit (HW switchable to IO8/8)	I-IO8/8
Intel AIN8	8 Analog inputs and 1 pulse/frequency input in a small unit	I-AIN8
IntelAIN8TC	8 Thermocouple Analog inputs in a small unit	I-AIN8TC
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+

Related products

Product	Description	Order code
IntelVision 5	Color 5.6" display for monitoring and control	INTELIVISION 5
IntelVision 5 RD	Color 5.6" display for monitoring and control (RS485 isolated and backlit buttons)	INTELIVISION 5 RD
IntelVision 8	Color 8" display for advanced monitoring, control & trending, USB capable	INTELIVISION 8

Functions and protections

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

Description	ANSI code	Description	ANSI code
Synchronism check	25	Earth fault current	50N+64
Undervoltage	27	Overcurrent (IDMT)	51
Overload	32	Earth fault current IDMT	51N+64
Load shedding	32P	Power factor	55
Reverse power	32R	Overvoltage	59
Undercurrent	37	Gas (fuel) level	71
Excitation loss	40	Vector shift	78
Current unbalance	46	AC reclosing	79
Voltage asymmetry and phase sequence	47	Overfrequency	81H
Temperature monitoring	49T	Underfrequency	81L
Generator overcurrent	50	ROCOF	81R

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, May 2000 • EN 60068-2-64 • EN 61010-1:2003	
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