

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

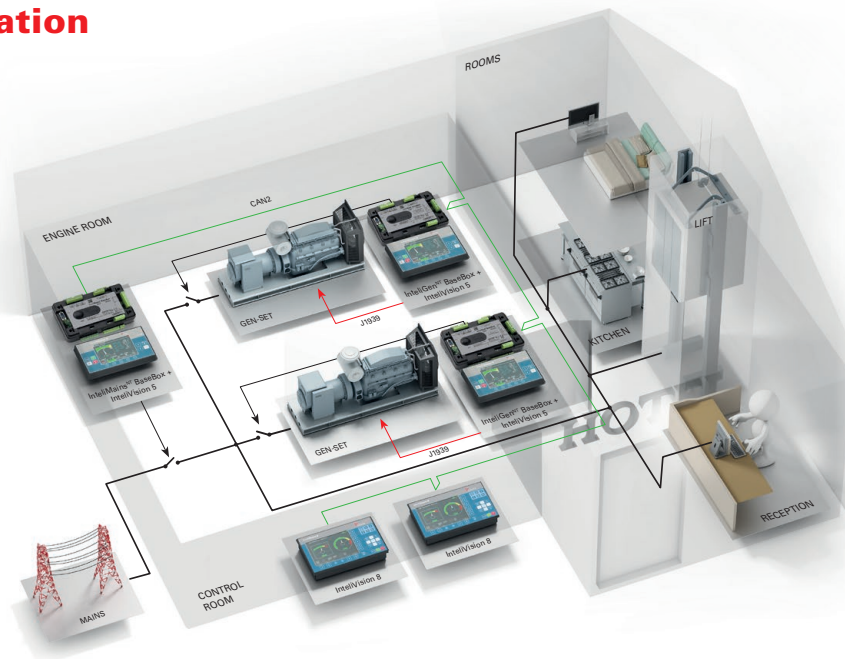
¹⁾ Only for IntelliVision 5

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."



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.



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, kVAr, kVA, PF, kWh, kVAhr
- ▷ Mains measurement: U, I, Hz, kW, kVAr, 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

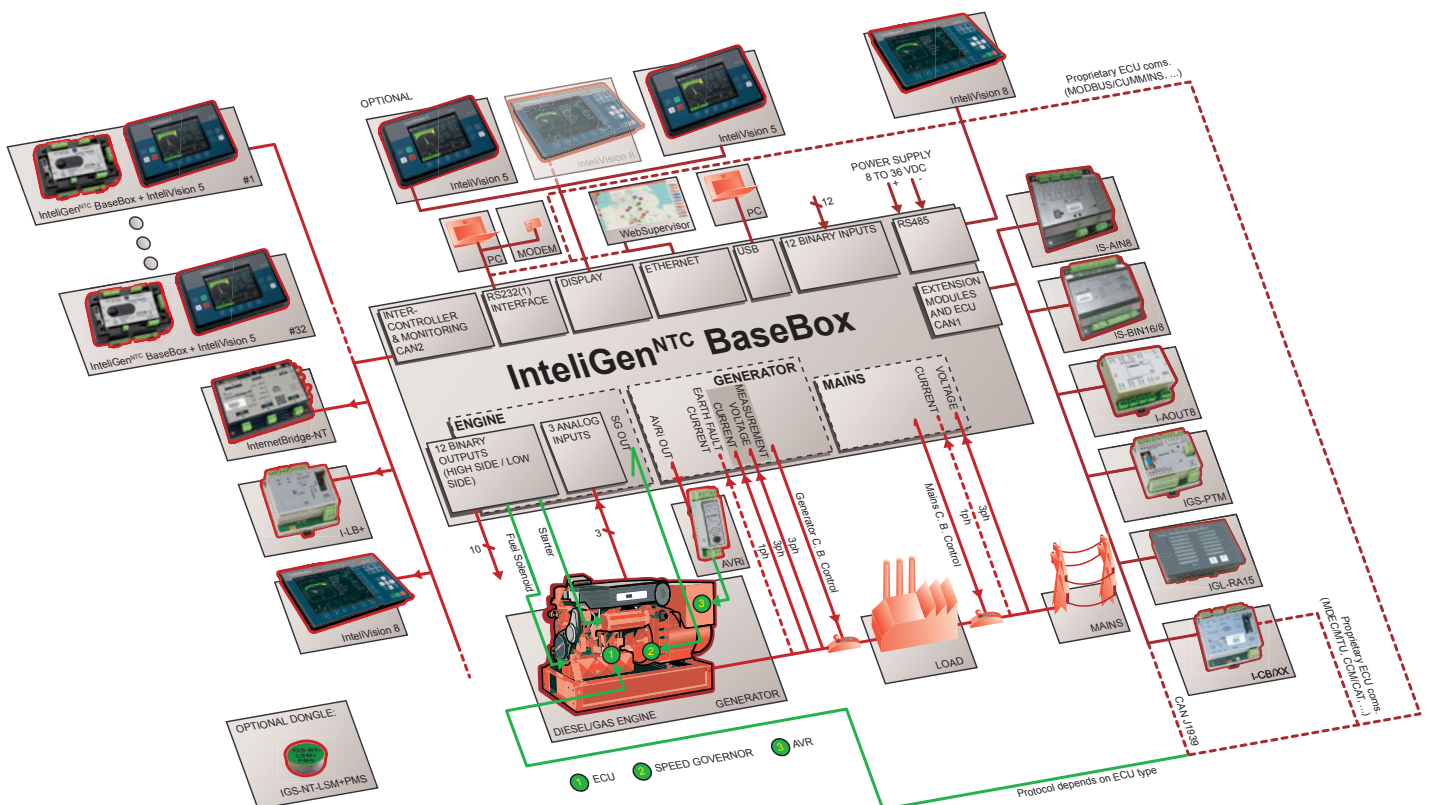
- ▷ 3 phase integrated generator protections (U + f)
- ▷ IDMT overcurrent + Shortcurrent protection
- ▷ Overload protection
- ▷ Reverse power protection
- ▷ Instantaneous and IDMT earth fault current
- ▷ 3 phase integrated mains protections (U + f)
- ▷ Vector shift and ROCOF protection
- ▷ All binary / 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:

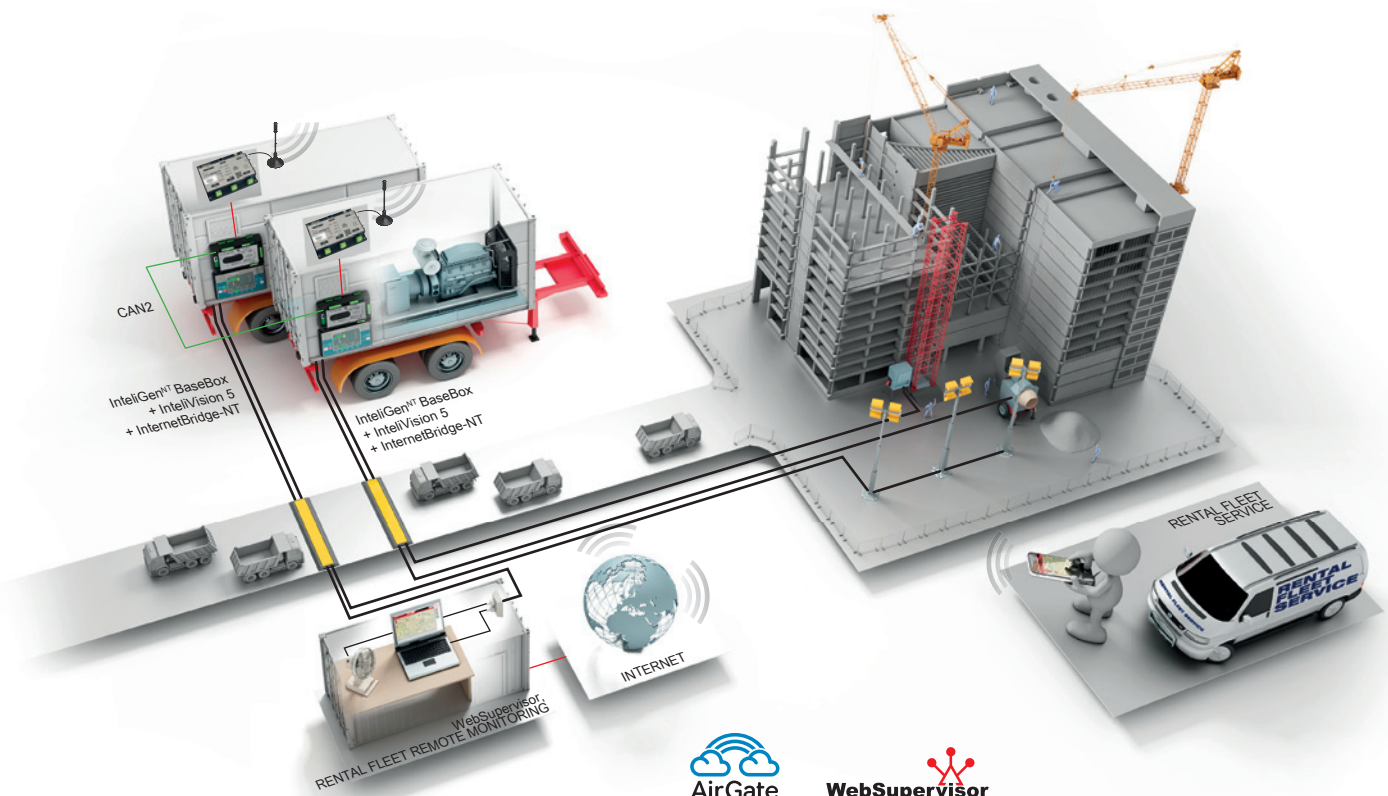
- ▷ 2x IntelliGen^{NT} BaseBox
- ▷ 2x IntelliVision 5
- ▷ 2x InternetBridge-NT

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

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

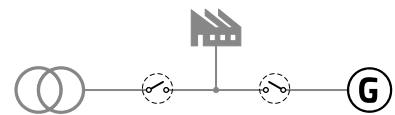
- Load sharing and VAr sharing via CAN
- Virtual shared inputs and outputs via CAN
- Support of wide range of applications
 - Single or multiple gen-sets in parallel to mains operation with automatic back up function, multiple island operation
- Advanced power management function
- Customizable load 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

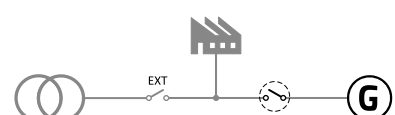
SPtM

Mains & Generator
Circuit Breaker



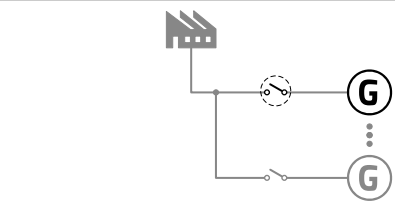
SPI

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, ± 1.6 mm 25-100Hz, a=4g |
| Shocks | a=200m/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 / >100 k Ω /180 Ω |
| Accuracy | $\pm 1\%$ of meas value ± 1 mV $\pm 2\%$ of meas value $\pm 2\Omega$ $\pm 1\%$ of meas value ± 0.5 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 |
|------|---|

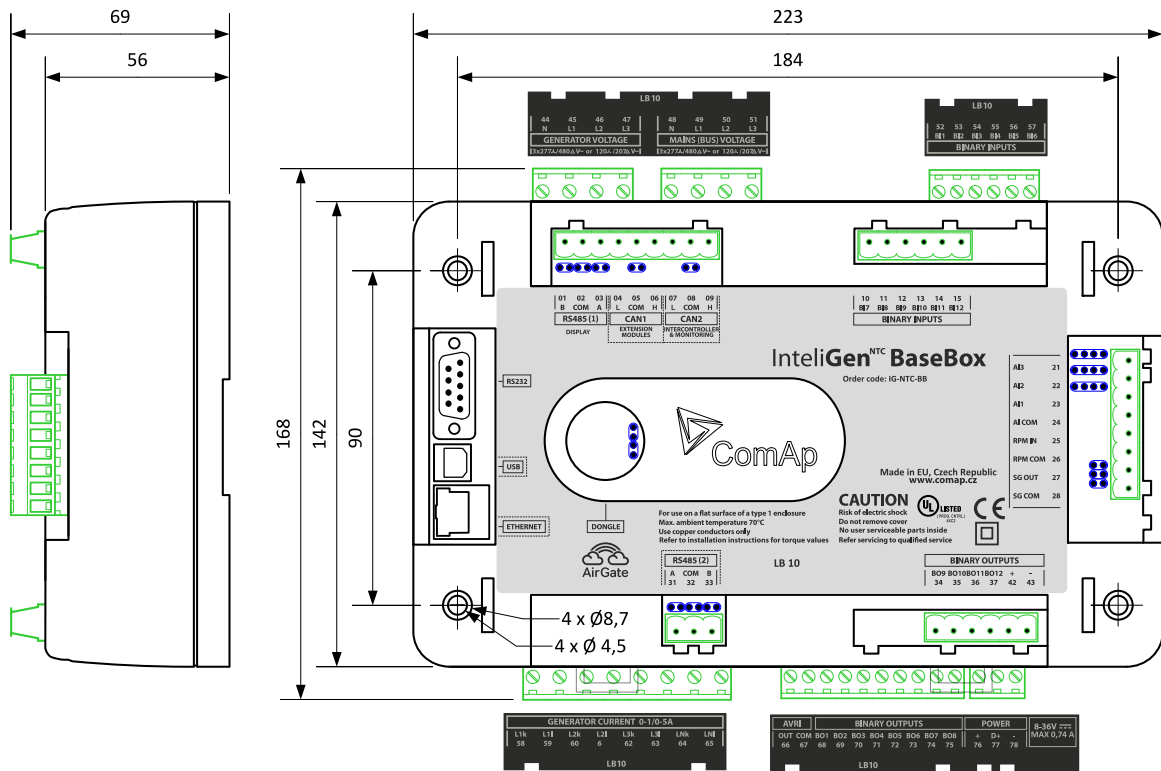
Speed governor outputoutput

| | |
|-----------------------------|--|
| 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 |

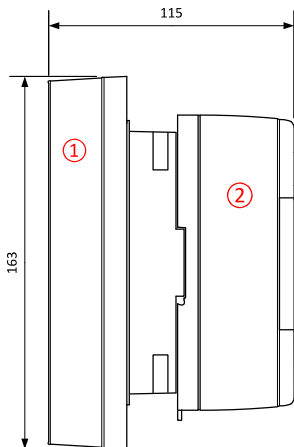
Communications

| | |
|---------------|--|
| 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 |

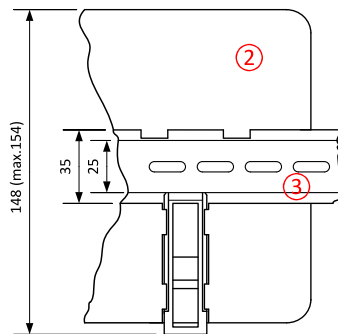
Dimensions, terminals and mounting



Panel door mounting with IntelliVision 5

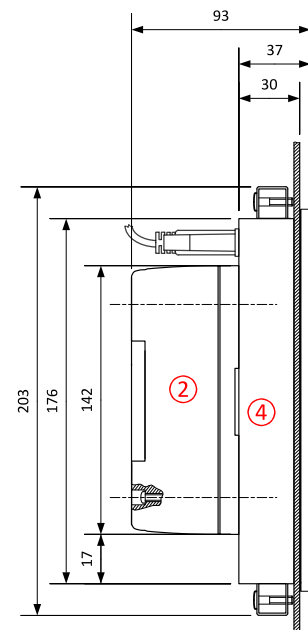


DIN-rail mounting



- 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 |
|-------------------|---|--------------------------|
| Inteli IO8/8 | 8 Binary inputs and 8 Binary outputs packed in a small unit (HW switchable to IO16/0) | I-IO8/8 |
| Inteli IO16/0 | 16 Binary inputs packed in a small unit (HW switchable to IO8/8) | I-IO8/8 |
| Inteli AIN8 | 8 Analog inputs and 1 pulse/frequency input in a small unit | I-AIN8 |
| InteliAIN8TC | 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 |
|-------------------|--|-----------------------------------|
| InteliVision 5 | Color 5.6" display for monitoring and control | INTELIVISION 5 |
| InteliVision 5 RD | Color 5.6" display for monitoring and control (RS485 isolated and backlit buttons) | INTELIVISION 5 RD |
| InteliVision 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

| | |
|---|---|
| <p>This product is CE compliant.</p> <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 |  |
|---|---|