InteliGen^{NT}

GENERAL PURPOSE HIGH-END GEN-SET CONTROLLER

Description

InteliGen^{NT} is a comprehensive controller for both single and multiple gen-sets operating in standby or parallel modes. Compact construction is optimized for these purposes and various HW modifications allow customers to select the optimum type for a particular application.

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

InteliGen^{NT} supports many standard ECU types and is specially designed to easily integrate new ones.

A powerful graphic display with user-friendly controls allows any user whatever their ability to find the information they need.

ComAp is able to offer customized firmware solutions.

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
- Perfect price/performance ratio
- Gen-set performance log for easy problem tracing

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.

Features

InteliGen^{NT}

- 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
- Inputs and outputs configurable for various customer needs
- Controller redundancy
- RS232/RS485 interface with Modbus support; Analog/GSM/ISDN/CDMA modem support; SMS messages; ECU Modbus interface
- Event-based history (up to 500 records) with customer-selectable list of stored values; RTC; statistic values
- Integrated PLC programmable functions
- Interface to remote display unit (IG-Display LT GC)
- Dimensions 180×120 mm (front panel)
- Sealed to IP65

InteliGen^{NTC} – All items from InteliGen^{NT} plus:

- Selectable measurement ranges for AC voltages and currents – 120/277 V, 0–1/0–5 A
- Secondary isolated RS232/RS485 interface
- USB 2.0 slave interface

Integrated fixed and configurable protections

- 3 phase integrated generator protections (U + f)
- IDMT overcurrent + Shortcurrent protection
- Overload protection
- Reverse power protection
- Earth fault protection
- 3 phase integrated mains protections (U + f)
- Vector shift 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

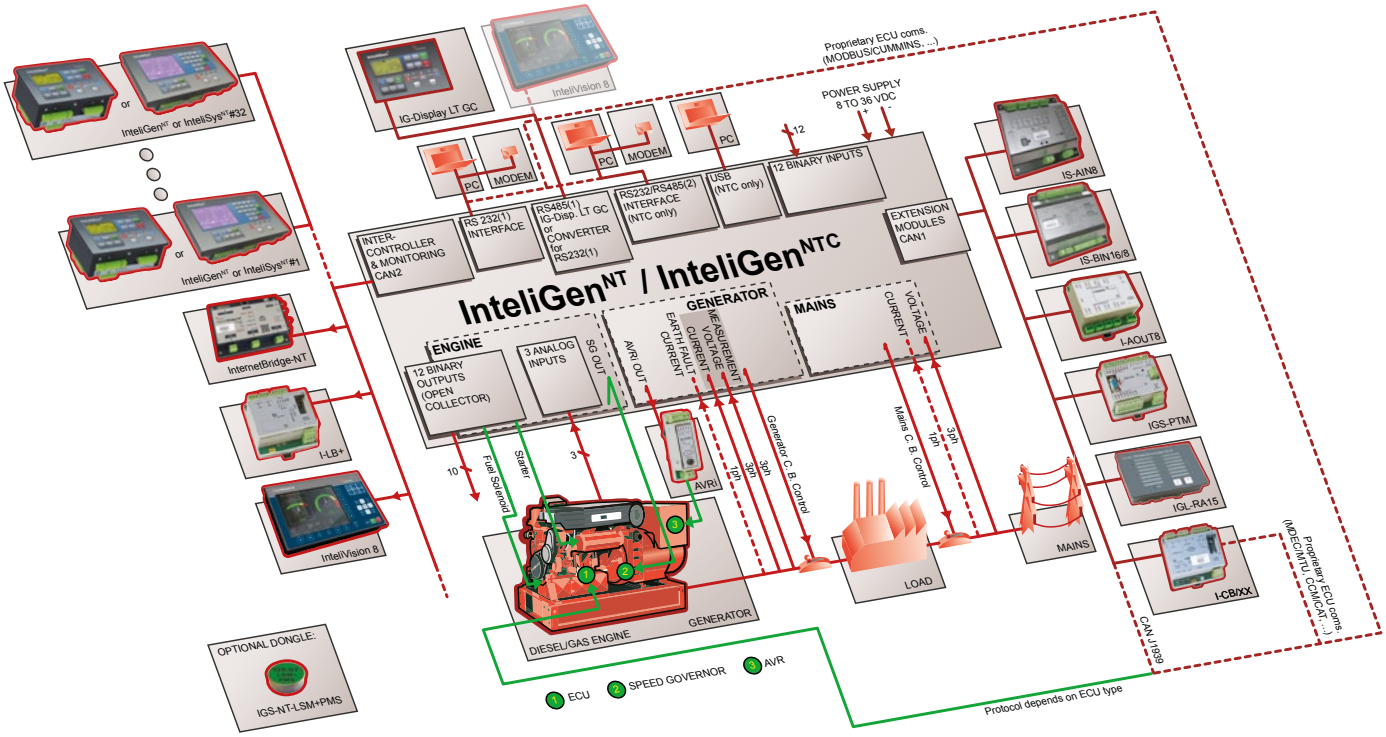
ANSI CODES

ANSI code	Protection
59	Overvoltage
27	Undervoltage
47	Voltage asymmetry
81H	Overfrequency
81L	Underfrequency
81R	ROCOF
78	Vectorshift
50+51	Overcurrent
46	Current unbalance

ANSI code	Protection
32	Overload
51N+64	Earth
32R	Reverse power
25	Synchronism check
47	Phase rotation
37	Undercurrent*
55	Power factor*
71	Gas (fuel) level

* can be created using universal protections

Schematic diagram



ComAp

Communication modules and PC tools

- **I-CR** – CAN repeater module
- **InternetBridge-NT** – Internet bridge module with wireless connection
- **I-LB+** – Local bridge
- **I-CB** – ECU communication bridge
- **InteliMonitor** – PC monitoring tool
- **InteliSupervisor** – PC tool for Gen-set or machines fleet management
- **WinScope** – Special graphical controllers' monitoring software
- **GenConfig** – PC configuration tool

Upgrade kit

- **IGS-NT-LSM+PMS dongle:**
  - Enables Multiple isolated parallel or multiple parallel with mains
  - Power management operation (with CAN bus)
  - Digital Load Sharing
  - Digital VAr Sharing

Extension modules and remote displays

- up to 4× **I-AOUT8** – Analog output extension module
- **IGL-RA15** – Remote annunciator
- up to 4× **IGS-PTM** – Analog/binary input/output module
- up to 10× **IS-AIN8** – Analog input module
- up to 10× **IS-AIN8TC** – Analogue input module for thermocouples
- up to 6× **IS-BIN16/8** – Binary input/output module
- **IG-Display LT GC** – Additional remote display
- up to 2× **InteliVision 5** – Controller 5.7" colour display unit
- up to 5× **InteliVision 8** – Controller 8" colour display unit
- **InteliVision 17Touch** – Site 17" colour display unit

Order codes

Controller	Order code
InteliGen^{NT}	IG-NT GC
InteliGen^{NT} LT	IG-NT LT GC
InteliGen^{NTC}	IG-NTC GC
InteliGen^{NTC} LT	IG-NTC LT GC

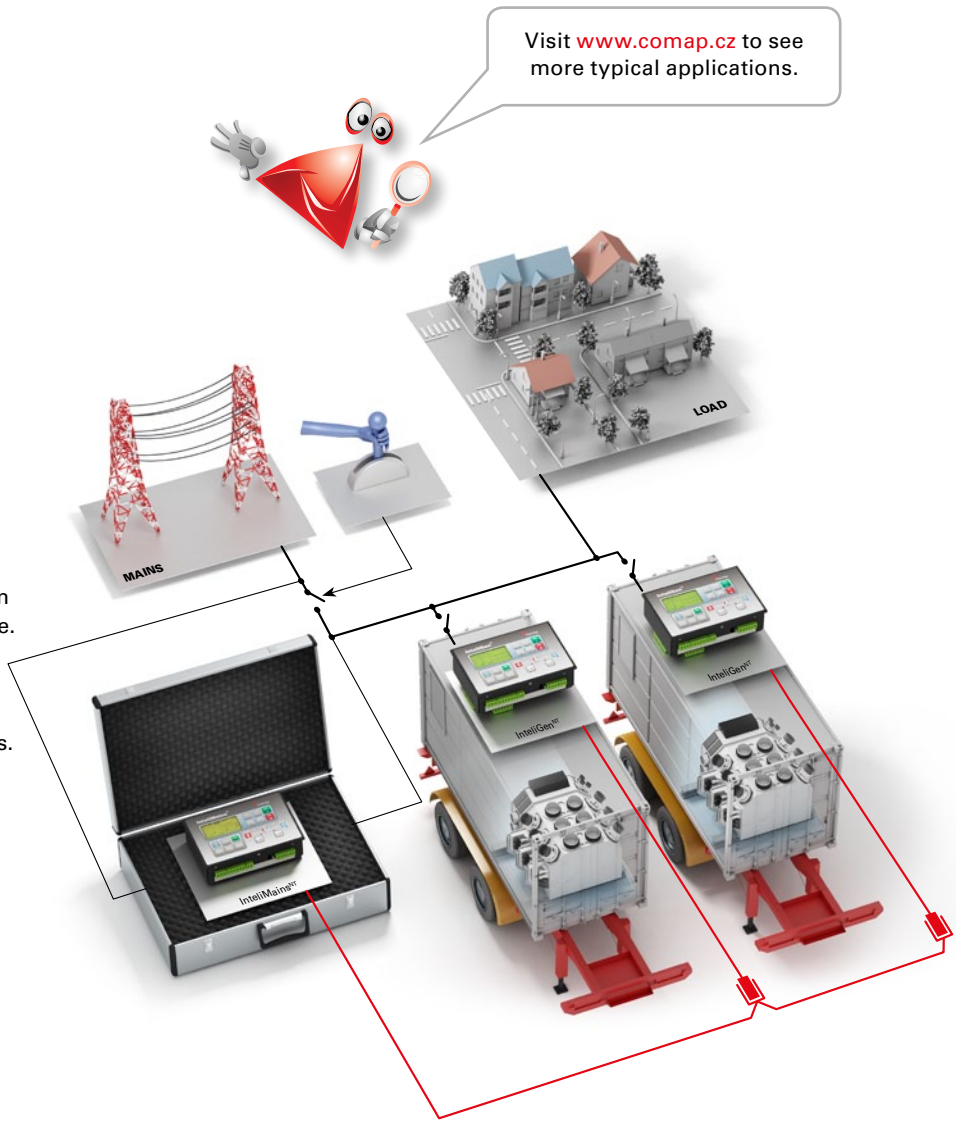
Typical application

RENTAL SETS

Description:

- Containerized rental gen-sets can be used for maintenance of power lines without interruption of power delivery to end consumer.
- Gen-sets are connected one-by-one to mains at the consumer's end and manually loaded. Power line is then manually disconnected and consumer is powered from generators running in parallel.
- The group of gen-sets is reverse synchronized to mains after finalization of maintenance on power line. InteliMains^{NT} keeps generators and mains in synchronism enabling manual reconnection to power line.
- InteliMains^{NT} is built in a small shock proof suitcase.
- Interconnection of containers is done by color coded not-interchangeable connectors.
- 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.
- Frequency selector enables switching between 50Hz/230V and 60Hz/277V mains.

Visit www.comap.cz to see more typical applications.



Scope of supply:

- 2× InteliGen^{NT}
- 2× IGS-NT-LSM+PMS dongle
- 2× IG-AVRi
- 2× IG-AVRi-TRANS/LV
- 1× InteliMains^{NT}

Functions chart

Controller	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, 2× RS485, USB, Ethernet, Modbus, ModbusTCP, AirGate, Web server	CAN1, CAN2, RS232, 2× RS485, USB, Ethernet, Modbus, ModbusTCP, 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 128×64	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

Customer feedback

"Regarding the parallel application, we only use ComAp controllers for many reasons – the most advanced technology, the fantastic policy of ComAp in providing the software upgrades via Internet without costs, the constant evolution of software and the easy way of use. This special modern way of working (open and wide information) gives ComAp the leadership in their business."

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