PRODUCT GUIDE

Electronic edition – Power Generation Controllers

ComAp
CREATIVE ENGINEERING
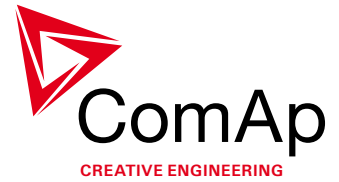
The interactive simulator provides a taste of the new InteliVision, with demo and preview options illustrating screen information and function.

simulator ONLINE

InteliVision

InteliVision is a new generation colour display unit for either InteliGen^NT / InteliSys^NT or InteliDrive controllers. It is designed as a simple, easy to use Plug and Play solution, which also features our unique TRENDS monitoring as a standard feature.

It is the first colour display in the Power Generation field. More info on page 54.

www.comap.cz/intelivision

SWITCHED ONTO INNOV/

InteliDrive® MOBILE

The InteliDrive Mobile is a highly flexible sophisticated mobile electronic controller, which features outstanding control, monitoring and protection for diesel and gas engines as well as driven technology.

The new controller offers range of specific functions suitable for mobile applications as hydraulic system control, communication with sensors and operational devices control.

Most commonly, these tailored applications meet the specific control requirements of mobile hydraulics, engine driven compressors and pumps.

InteliCompact NT

InteliCompact[NT] models are new integrated controllers for gen-sets operating in both standby and parallel modes. Functionality, optimized for ease of use, installation and configuration, includes built-in synchronizer and digital isochronous load sharer.

ComAp

InteliATS NT

The new InteliATS^{NT} controllers are designed to monitor the incoming AC mains supply (1 or 3 phases) for under voltage, over voltage, under frequency, over frequency and voltage unbalance.

WELCOME TO OUR PRODUCT GUIDE

Following the positive feedback from our first Product Guide we have updated the second issue with more information on an ever-growing range of control products. In the meantime, our design and development teams have worked very hard to create exciting new control solutions to meet customers' application needs – all of which are detailed in the new guide.

We hope you find it just as useful and practical as before. Inside you will find technical information, product features and functions, alongside customer feedback on how the products have performance in the field. Hearing what you think is very important to us, so if you would like to share you experience of using our products please let us know by emailing your story to info@comap.cz

Overall the offers a comprehensive guide to our entire range of products and accessories. I hope you find it both helpful and invaluable.

Regards
Libor Mertl – Managing Director

ComAp

CONTENT

? IA-NT, IL-NT, IC-NT, MC-NT, IG-NT, IS-NT, IGS-NT, IM-NT, ID, IV ...

Power Generation Controllers

ATS controllers   8

The ComAp ATS control products are designed to monitor the AC mains supply for under / over voltage, under / over frequency and voltage unbalance and forward a start command on detection of mains supply disproportion. The family of models provides a wide choice of control features and user configurability options.

Gen-set controllers   10

The ComAp 'New Technology' family is a comprehensive range of configurable Gen-set controllers suitable for managing simple, everyday or even the most complex CHP application. In addition, all ComAp Gen-set controllers now feature one piece of software making them universally compatible with most of the leading manufacturers of electronic engines.

With increased memory, more features and greater processing speed, ComAp's 'New Technology' control products have built an enviable reputation for effective system integration, simpler monitoring and more user-friendly remote supervising and servicing.

Generator controllers   28

Our InteliGen^{NT} GeCon is a comprehensive generator controller for single or multiple gen-sets operating in standby or parallel modes. A built-in synchronizer and a digital isochronous load sharer allow a total integrated solution for generators in standby, island parallel or mains parallel.

InteliATS on the left margin (vertical)

InteliATS^{NT}

AUTO TRANSFER SWITCH CONTROLLER

The new InteliATS^{NT} controllers are designed to monitor the incoming AC mains supply (1 or 3 phases) for under voltage, over voltage, under frequency, over frequency and voltage unbalance. In the case of any mains supply disproportion it will send a remote start command to the generating set and make change over for both generator and mains contactors. The gen-set requires a remote start type control unit (e.g. the ComAp InteliLite^{NT} MRS 10 controller).

The products belong to the new family of controllers that fulfills every requirement from simple to complex applications – with specific models providing modem and internet control, user configuration and complete gen-set monitoring and protection.

Both InteliATS^{NT} controllers are easy to use with an intuitive user interface and graphic display. The PWR model also features a built-in event and performance log with backed-up real time clock making troubleshooting even simpler.

Benefits

- Transfer between mains and generator power
- On-site controller configuration
- Less wiring and components
- Less engineering and programming
- Remote monitoring reduced call-out costs of service engineers
- Active SMS / E-mails
- Perfect price / performance ratio
- History log – easy troubleshooting and warranty claim handling
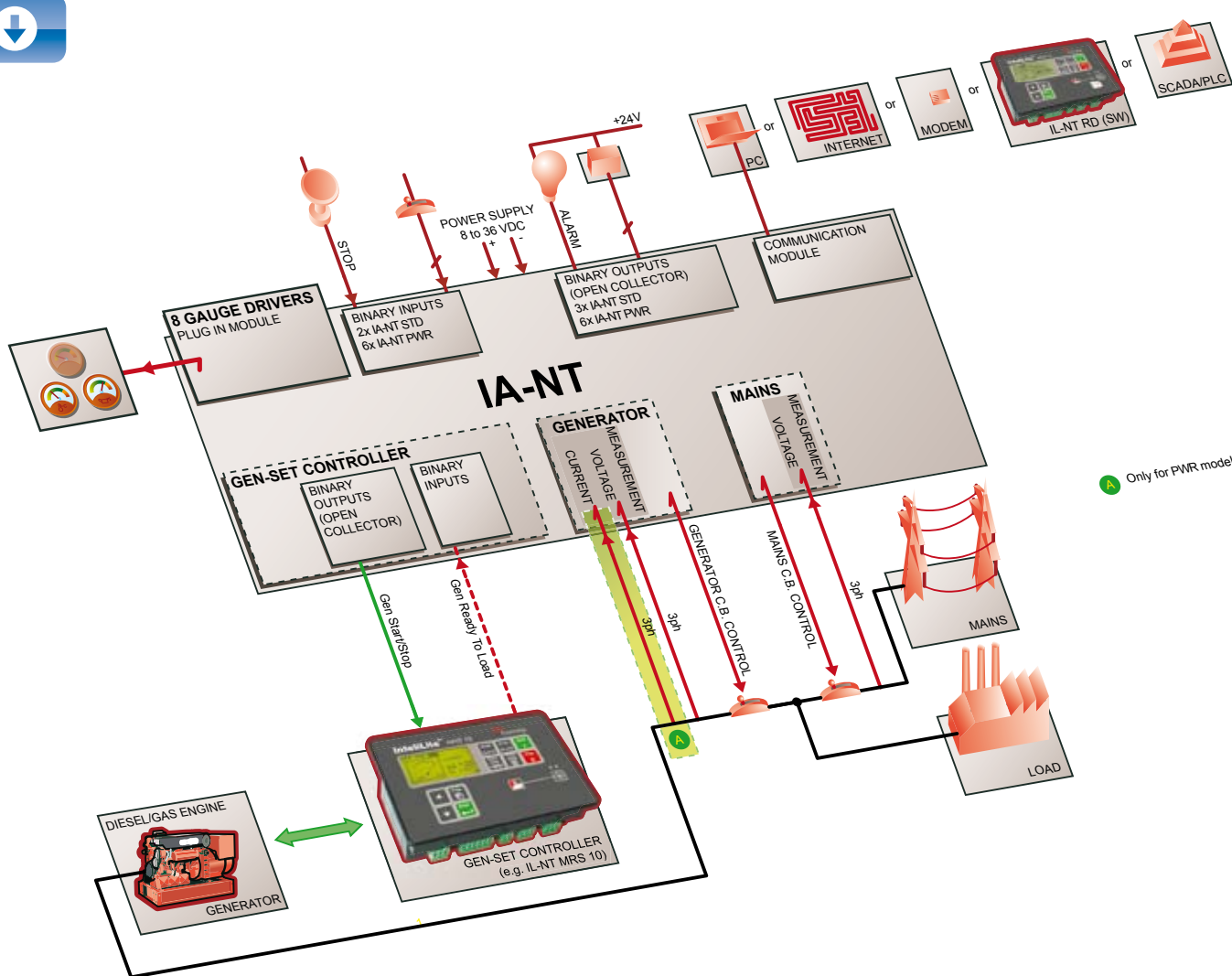
Features

▷ **InteliATS^{NT} STD**
- 3 phase true RMS voltage measurement: generator & mains nominal voltage up to 277 V ph-n, 480 V ph-ph, max. measured voltage 300 V ph-n, PT ratio range 0.1–500
- 3 phase ATS function: <V, >V, <f, >f, V asymmetry
- 3 phase generator protections: <V, >V, <f, >f, V asymmetry
- Test Run scheduler
- User interface: 128 × 64 pixels display, 2 languages, user changeable from PC, setpoints adjustable via keyboard or PC, buttons with mechanical feedback
- Inputs and outputs: 3 binary inputs, 4 binary outputs, optional 8 analog gauge drive outputs, compatible with VDO, Datcon gauges
- Backup battery: ATS function works with backup battery or in reduced mode without backup battery

▷ **InteliATS^{NT} PWR**
- All items from InteliATS^{NT} STD plus:
- 3 phase true RMS current measurements: generator current up to 5 A, maximal measured current 10 A, CT ratio range 1–5000
- 3 >c, c asymmetry
- Power measurement: active / reactive power and power factor per phase. Active / reactive energy counter. Apparent power
- Event and performance log + RTC: Event based history with 119 events, Reason, Data and Time + all important values are stored, battery backed RTC
- Inputs and outputs: 7 binary inputs, 7 binary outputs
- Active calls: 2 channels SMS or E-mails

AUTO TRANSFER
SWITCH CONTROLLER

Diagram labels:

- +24V
- POWER SUPPLY 8 to 36 VDC + −
- STOP
- ALARM
- PC
- or
- INTERNET
- or
- MODEM
- or
- IL-NT RD (SW)
- or
- SCADA/PLC
- 8 GAUGE DRIVERS PLUG IN MODULE
- BINARY INPUTS 2x IA-NT STD 6x IA-NT PWR
- BINARY OUTPUTS (OPEN COLLECTOR) 3x IA-NT STD 6x IA-NT PWR
- COMMUNICATION MODULE
- IA-NT
- GEN-SET CONTROLLER
- BINARY OUTPUTS (OPEN COLLECTOR)
- BINARY INPUTS
- GENERATOR
- MEASUREMENT VOLTAGE CURRENT
- MAINS
- MEASUREMENT VOLTAGE
- A Only for PWR model
- Gen Start/Stop
- Gen Ready To Load
- 3ph
- GENERATOR C.B. CONTROL
- MAINS C.B. CONTROL
- 3ph
- MAINS
- LOAD
- DIESEL/GAS ENGINE
- GENERATOR
- GEN-SET CONTROLLER (e.g. IL-NT MRS 10)
- A

Mechanical and operation parameters

- Unit dimension 120 × 180 mm
- Sealed front face rated for IP65
- Hard plexiglass LCD cover
- Operation temperature:
  - -20°C to +70°C standard version
  - -40°C to +70°C low temperature version
- Power supply voltage 8–36 V
- Voltage drops shorter than 50 ms do not affect operation

Communication interfaces

- Optional RS232 and RS485 (including Modem support) plug-in interface
- Optional USB and ETH (Internet) plug-in interface
- Modbus RTU (requires RS485 interface)
- Internet

Accessories and PC tools

- IL-NT AOUT8 — see page 48
- IB-Lite — see page 50
- IL-NT RS232 — see page 52
- IL-NT RS232-485 — see page 52
- IL-NT S-USB — see page 52
- IL-NT RD (SW) — see web pages
- WinScope — see page 59
- LiteEdit — see page 62

Mexico
ATS offers great potential…

"We have used ComAp controllers for over 7 years and have found their design intuitive and simple to use for both our engineers and customers. What stands out with ComAp products is their user-friendly programming, clear information manuals, easily downloadable software / up-grade firmware and the warranty that comes with these quality products.

In particular, we have find great potential with ATS controllers on applications to feed emergency power boutiques on commercial centre projects, where boutiques pay the landowner an additional fee for the service of an emergency supply system. The same scheme is used on office buildings which may have the same need."

Mauricio Sierra
Managing Director
www.dwppon.com

InteliLite^{NT} MRS models are integrated controllers for single engine control in manual and remote start applications, featuring full gen-set monitoring and protection. In other words making them ideal for primer mover applications.

The controller is intuitive to handle, easy to configure and spare costs for commissioning and maintenance.

Like all ComAp products, InteliLite^{NT} MRS models feature a powerful graphic display providing user-friendly information in an easy to understand format.

The four standard MRS models are identified by a number, which defines model capability (10, 11, 15, 16). Detail features overview of the InteliLite^{NT} MRS models is on page 30.

InteliLite^{NT} can communicate via CAN J1939 or Modbus communication protocols to a wide range of EFI engines, which include Caterpillar, Cummins, Deutz, Detroit Diesel, GM, Iveco, John Deere, Perkins, Scania, Sisu, Volvo Penta and others.

A special low temperature version (IL-NT MRS 16 LT) is also available, allowing the display to work up to -40 °C.

InteliLite^{NT} MRS

SINGLE SET GEN-SET CONTROLLER

InteliLite^{NT} MRS

SINGLE SET GEN-SET CONTROLLER

Benefits

- Less wiring and components
- Less engineering and programming
- Remote monitoring reduced call-out costs of service engineers
- DC analog gauge outputs – simple connection to standard panel meters
- Active SMS / E-mails
- Direct communication with EFI engines
- Perfect price / performance ratio
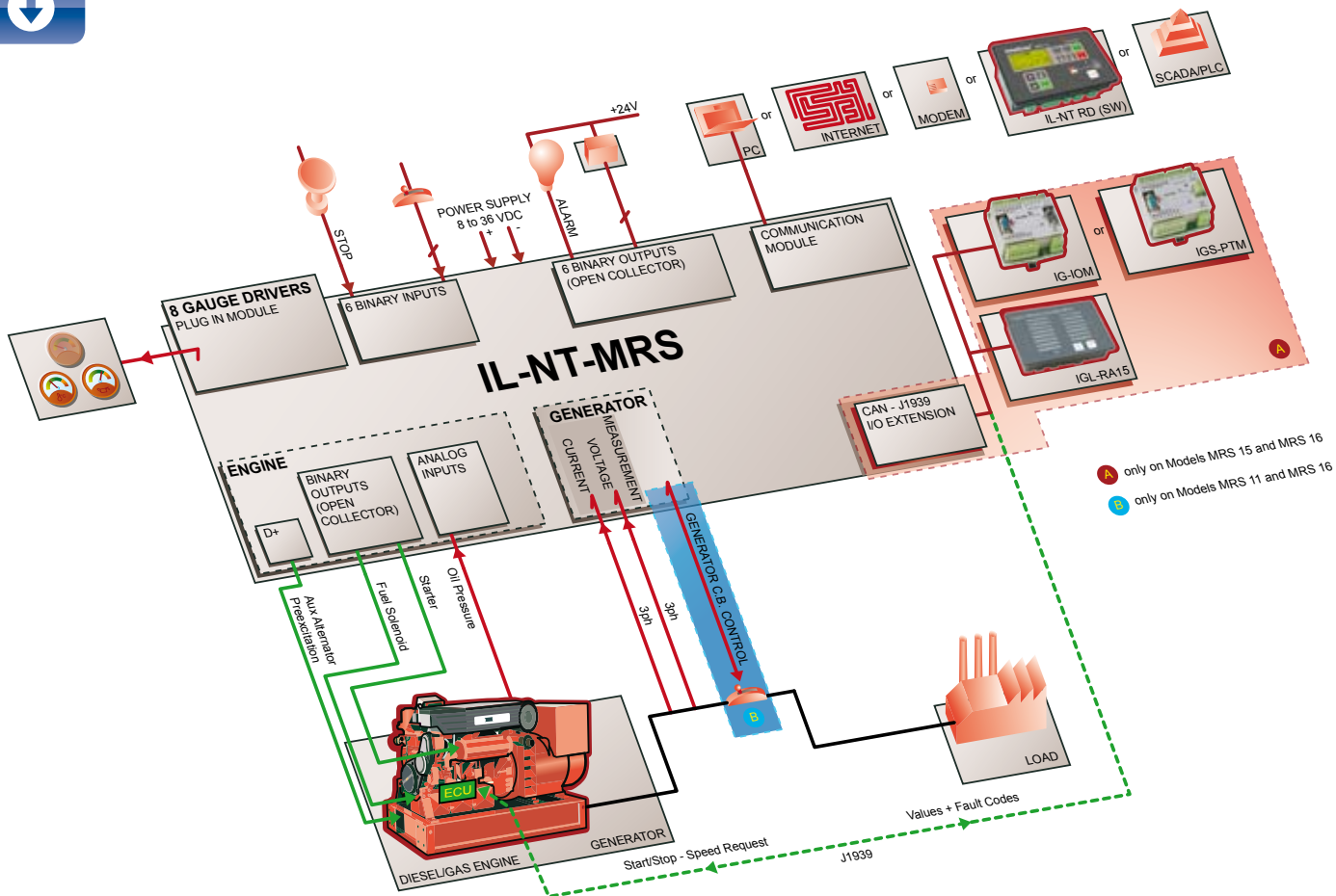- History log – easy troubleshooting and warranty claim handling *(15, 16)**

Features

- Support of engines equipped with Electronic Control Unit – J1939 interface *(15, 16)**
- Comprehensive diagnostic messages; SPN / FMI codes; KWP2000 support
- Automatic or manual start / stop of the gen-set
- Push buttons and LEDs for simple control
- Graphic back-lit LCD display 128 × 64 pixels
- Parameters adjustable via keyboard or PC
- 3 phase Generator protections
- Generator measurements (50 / 60 Hz): U1-U3, I1-I3, Hz, kW, kVAr, kVArh, kWh
- Selectable protections alarm / shutdown
- Configurable analog inputs and outputs
- Battery voltage, engine speed (pick-up) measurement
- Configurable programmable binary inputs and outputs
- Event based history file *(15, 16)**
- Warm-up and cooling functions
- Generator C.B. control *(11, 16)**
- Wide range of communication interfaces – RS232, RS485, USB, GSM/analog modem, Ethernet
- Modbus
- Dimensions 180 × 120 mm (front panel)
- Sealed to IP65

* Stated features available on this model

Diagram labels:
+24V
POWER SUPPLY 8 to 36 VDC
ALARM
STOP
6 BINARY INPUTS
6 BINARY OUTPUTS (OPEN COLLECTOR)
COMMUNICATION MODULE
PC
INTERNET
MODEM
IL-NT RD (SW)
SCADA/PLC
8 GAUGE DRIVERS PLUG IN MODULE
IG-IOM
IGS-PTM
IGL-RA15
CAN - J1939 I/O EXTENSION

IL-NT-MRS

ENGINE
BINARY OUTPUTS (OPEN COLLECTOR)
ANALOG INPUTS
D+
GENERATOR MEASUREMENT VOLTAGE CURRENT
Aux Alternator Preexcitation
Fuel Solenoid
Starter
Oil Pressure
GENERATOR C.B. CONTROL
3ph
3ph
ECU
DIESEL/GAS ENGINE
GENERATOR
LOAD
Values + Fault Codes
Start/Stop - Speed Request
J1939

A only on Models MRS 15 and MRS 16
B only on Models MRS 11 and MRS 16

Integrated fixed and configurable protections

- Binary / analog input configurable protections
- Engine underspeed and overspeed protection
- 3 phase Generator protections
  - Over / under voltage
  - Over / under frequency
  - Current / voltage asymmetry
  - Overcurrent / overload
- Battery over/under voltage protection
- Maintenance counter

Communication extension features

- Optional RS232 and RS485 (including Modem support) plug-in interface
- Optional USB and ETH (Internet) plug-in interface
- Modbus RTU (requires RS485 interface)
- Internet

Communication modules and PC tools

- IB-Lite   see page 50
- IG-IB   see page 51
- IL-NT RS232   see page 52
- IL-NT RS232-485   see page 52
- IL-NT S-USB   see page 52
- WinScope   see page 59
- LiteEdit   see page 62

Extension modules and rem. displ.

- IG-IOM   see page 46
- IGL-RA15   see page 46
- IGS-PTM   see page 47
- IL-NT AOUT8   see page 48
- IL-NT RD (SW)   see web pages

EFI engine support

- Cummins Modbus
- Engine specific J1939 for all major manufacturers
- Diagnostic messages in plain text

Croatia
Easily integrated products

"When we started using ComAp's controllers it was true discovery for us! We very much appreciate the ability to easily integrate controllers into both standard and demanding applications.

Pre-defined options are superb for fast and easy modifications in respect of our customers needs. ComAp's great approach to product design is enjoyed by engineers during installation as well as by customers during later usage. It's quality you can feel under your fingertips!"

Hrvoje Ban
Service Engineer
www.adeo.hr

ComAp 11

InteliLite^NT^ AMF models are integrated controllers for gen-sets operating in single standby mode. They meet all possible requirements for AMF applications, including modem control, user configuration and full gen-set monitoring and protection.

AMF models enable the combination of manual and remote start application with auto mains fail function.

The controller is intuitive to handle, easy to configure and spare costs for commissioning and maintenance.

Like all ComAp products, InteliLite^NT^ AMF models feature a powerful graphic display providing user-friendly information in an easy to understand format.

The two standard AMF models are identified by a number that defines model capability (20, 25). Detail features overview of the InteliLite^NT^ AMF models is on page 30.

InteliLite^NT^ can communicate via CAN J1939 or Modbus communication protocols to a wide range of EFI engines, which include Caterpillar, Cummins, Deutz, Detroit Diesel, GM, Iveco, John Deere, Perkins, Scania, Sisu, Volvo Penta and others.

A special low temperature version (IL-NT AMF 25 LT) is also available, allowing the display to work up to -40 °C.

InteliLite^NT^ AMF

InteliLite^NT^ AMF

SINGLE SET GEN-SET CONTROLLER

Benefits

- Less wiring and components
- Less engineering and programming
- Remote monitoring reduced call-out costs of service engineers
- DC analog gauge outputs – simple connection to standard panel meters
- Active SMS / E-mails
- Direct communication with EFI engines
- Perfect price / performance ratio
- History log – easy troubleshooting and warranty claim handling *(25)**

Features

- Support of engines equipped with Electronic Control Unit J1939 interface *(25)**
- Comprehensive diagnostic messages; SPN / FMI codes; KWP2000 support
- Automatic or manual start / stop of the gen-set
- Push buttons and LEDs for simple control
- Graphic back-lit LCD display 128 × 64 pixels
- Parameters adjustable via keyboard or PC
- Mains measurements (50 / 60 Hz): U1-U3, Hz
- Generator measurements (50 / 60 Hz): U1-U3, I1-I3, Hz, kW, kVAr, kWh
- Selectable protections alarm / shutdown
- Configurable analog inputs and outputs
- Battery voltage, engine speed (pick-up) measurement
- Configurable programmable binary inputs and outputs
- Event based history file *(25)**
- Warm-up and cooling functions
- Generator C.B. and Mains C.B. control with feedback and return timer
- Wide range of communication interfaces – RS232, RS485, USB, GSM/analog modem, Ethernet
- Modbus
- Dimensions 180 × 120 mm (front panel)
- Sealed to IP65

  * Stated features available on this model

SINGLE SET GEN-SET CONTROLLER

IL-NT-AMF
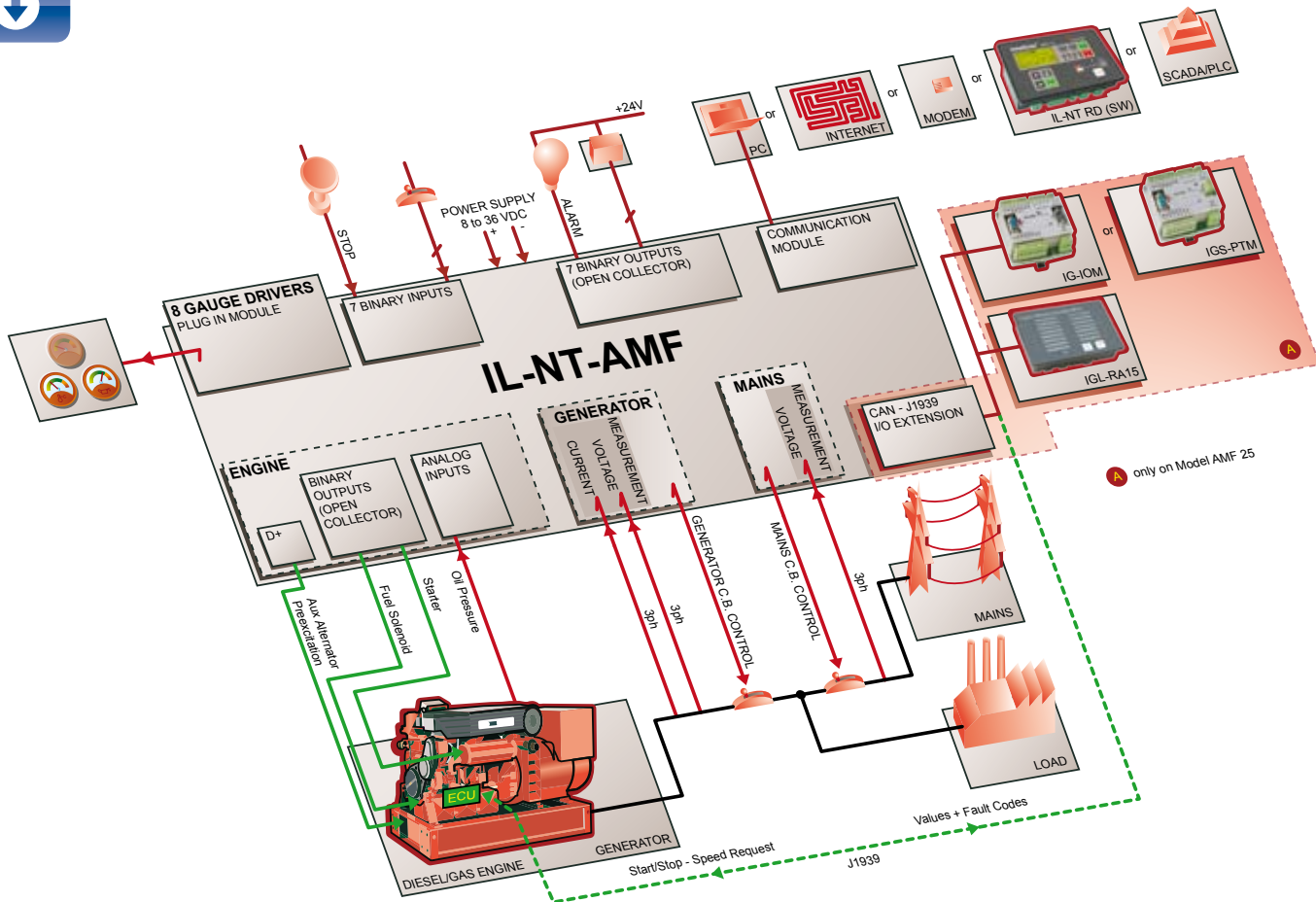
A only on Model AMF 25

Integrated fixed and configurable protections

- Binary / analog input configurable protections
- Engine underspeed and overspeed protection
- 3 phase Generator protections
  - Over / under voltage
  - Over / under frequency
  - Current / voltage asymmetry
  - Overcurrent / overload
- 3 phase AMF function
  - Over / under frequency
  - Over / under voltage
  - Voltage asymmetry
- Battery over/under voltage protection
- Maintenance counter

Communication extension features

- Optional RS232 and RS485 (including Modem support) plug-in interface
- Optional USB and ETH (Internet) plug-in interface
- Modbus RTU (requires RS485 interface)
- Internet

Communication modules and PC tools

IB-Lite	see page 50
IG-IB	see page 51
IL-NT RS232	see page 52
IL-NT RS232-485	see page 52
IL-NT S-USB	see page 52
WinScope	see page 59
LiteEdit	see page 62

Extension modules and rem. displ.

IG-IOM	see page 46
IGL-RA15	see page 46
IGS-PTM	see page 47
IL-NT AOUT8	see page 48
IL-NT RD (SW)	see web pages

EFI engine support

- Cummins Modbus
- Engine specific J1939 for all major manufacturers
- Diagnostic messages in plain text

United Arab Emirates

Generators equipped with IL-NT AMF 25

Prime Technology Power System first used IL-CU AMF 25 in their range of generators ranging from 50 kVA to 500 kVA, but since the introduction of the InteliLite NT range have now updated to using IL-NT AMF 25 gen-set controllers. The generators they supply are typically sound attenuated for use in the rental market and feature Deutz engines combined with Siemens Alternators.

"In our experience of using ComAp products we have never faced any problems with the controllers. We have also found the website support and all online files very helpful, allowing us run the fleet efficiently and without problems."

S. Kanaga Sundara Moorthy
Senior Electrical Engineer

ComAp

InteliCompact^{NT} SPtM

InteliCompact^{NT} SPtM controllers are new integrated controllers combining AMF and paralleling functions for single gen-sets.

This combination allows the gen-set to be operated as an AMF gen-set with interrupt-free transfers as well as in continuous parallel-to-mains mode.

Functionality, optimized for ease of use, installation and configuration, includes built-in synchronizer and mains protections. InteliCompact^{NT} can communicate via standard and proprietary CAN J1939 or Modbus communication protocols to a wide range of EFI engines, which include Caterpillar, Cummins, Deutz, Detroit Diesel, GM, Iveco, John Deere, Perkins, Scania, Sisu, Volvo Penta and others.

The controller comes with PC software, which enables the user to configure the inputs and outputs to adapt the controller to individual requirements.

Like all ComAp products, InteliCompact^{NT} features a powerful graphic display providing user-friendly information in an easy to understand format.

Real time clock and event and performance history log are priceless when it comes to troubleshooting. Remote control and monitoring is possible via analog / GSM modem or Internet.

Optional instrumentation of internal values on analog gauge makes use easy even for untrained personnel.

InteliCompact^{NT} SPtM

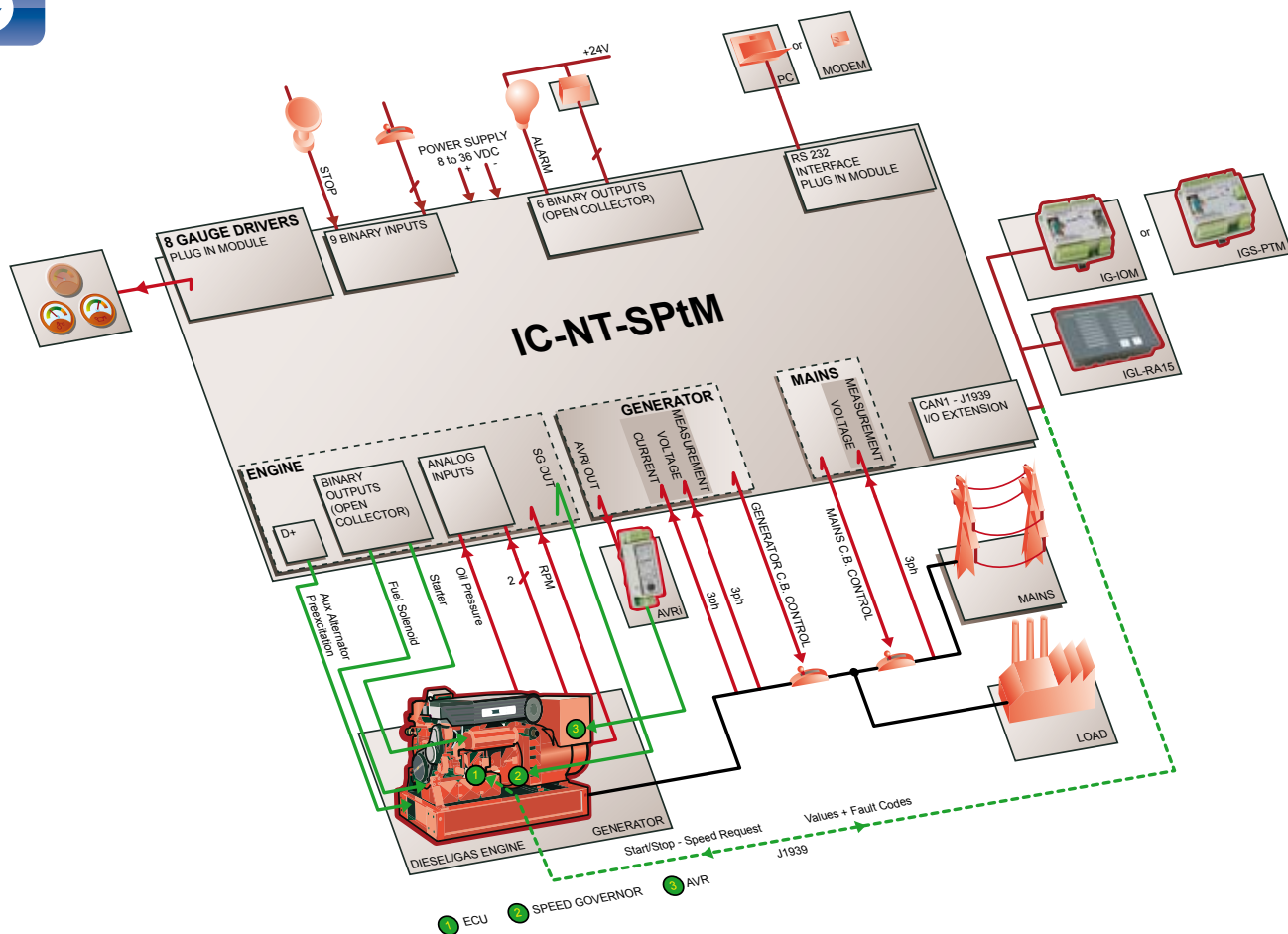**SINGLE GEN-SET IN PARALLEL TO MAINS CONTROLLER**

Benefits

- Less wiring and components
- Less engineering and programming
- Remote monitoring reduced call-out costs of service engineers
- DC analog gauge outputs – simple connection to standard panel meters
- Direct communication with EFI engines
- Perfect price / performance ratio
- History log – easy troubleshooting and warranty claim handling

Features

- Generator measurements: U, I, kW, kVAr (3 phase, true RMS), Hz
- Mains measurements: U, I (3 phase, true RMS), Hz
- Generator protections
- Engine protections
- Mains protections (U,f, Vectorshift)
- AMF function
- Energy counters
- Automatic synchronizing and load control (via speed governor or ECU)
- Synchronizing of MCB (reverse synchronizing)
- AVR control (Volt and PF control)
- Wide range of communication interfaces – RS232, RS485, USB, GSM/analog modem, Ethernet
- Modbus
- Support of electronic controlled engines (J1939, Modbus) including diagnostic information in plain text.
- Event based history with capacity for cca 100 records. Date, time and system snapshot (freeze frame) in each record.
- 2 languages, user modifiable

SINGLE GEN-SET IN PARALLEL TO MAINS CONTROLLER

Diagram labels:

+24V

PC or MODEM

POWER SUPPLY 8 to 36 VDC

STOP

ALARM

9 BINARY INPUTS

6 BINARY OUTPUTS (OPEN COLLECTOR)

RS 232 INTERFACE PLUG IN MODULE

8 GAUGE DRIVERS PLUG IN MODULE

IG-IOM or IGS-PTM

IGL-RA15

IC-NT-SPtM

MAINS

GENERATOR

MEASUREMENT VOLTAGE

MEASUREMENT VOLTAGE CURRENT

CAN1 - J1939 I/O EXTENSION

ENGINE

BINARY OUTPUTS (OPEN COLLECTOR)

ANALOG INPUTS

SG OUT

AVR OUT

D+

AVRi

Aux Alternator Preexcitation

Fuel Solenoid

Starter

Oil Pressure

2

RPM

GENERATOR C.B. CONTROL

MAINS C.B. CONTROL

3ph

3ph

3ph

MAINS

LOAD

GENERATOR

DIESEL/GAS ENGINE

Start/Stop - Speed Request

Values + Fault Codes

J1939

① ECU   ② SPEED GOVERNOR   ③ AVR

Basic technical specification	Extension modules	Communication modules and PC tools

Basic technical specification

- Power supply 8–36 V
- 3 resistive analog inputs
- 9 binary inputs
- 8 open collector binary outputs (low side switches)
- Dimensions 180 × 120 mm
- Sealed to IP65
- Operation temperature:
  - -20°C to +70°C standard version
  - -40°C to +70°C low temperature version

Extension modules

- IG-IOM   see page 46
- IGL-RA15   see page 46
- IGS-PTM   see page 47
- IL-NT AOUT8   see page 48

EFI engine support

- Cummins Modbus
- Engine specific J1939 for all major manufacturers
- Diagnostic messages in plain text

Communication modules and PC tools

- IB-Lite   see page 50
- IL-NT RS232   see page 52
- IL-NT RS232-485   see page 52
- IL-NT S-USB   see page 52
- InteliMonitor   see page 58
- WinScope   see page 59
- LiteEdit   see page 62

Iran
Niloo Tile Factory

This power project at Niloo Tile factory at Isfahan in Iran consists of two QSX15 Cummins gen-sets designed to run in parallel with the mains. The control system was designed and commissioned by Dorna Mehr Co (www.dornamehr.com), supported by distributor Samaneh Pardaz Sepahan Co and featured ComAp InteliGen and InteliMains to not only deliver non-stop power, but also run in parallel to mains in grid peak times to save energy costs.

For the type of applications listed above it is also possible to use our new brand "Compact" controllers. This new product line consists of IC-NT SPtM and IC-NT MINT (gen-set controllers) and MC-NT (mains controller).

InteliCompact^{NT} MINT controllers are new integrated controllers for gen-sets operating in groups parallel to each other and with or without the mains.

Functionality, optimized for ease of use, installation and configuration, includes built-in synchronizer and digital isochronous active and reactive load sharer. Native co-operation of up to 32 gen-sets is a standard feature.

The new InteliCompact^{NT} MINT models come with MainsCompact^{NT} controller, which is a mains controller, in order to extend the functionality of InteliCompact^{NT} MINT by functions needed for parallel to mains operation. InteliCompact^{NT} can communicate via standard and proprietary CAN J1939 or Modbus communication protocols to a wide range of EFI engines, which include Caterpillar, Cummins, Deutz, Detroit Diesel, GM, Iveco, John Deere, Perkins, Scania, Sisu, Volvo Penta and others.

The controller comes with PC software, which enables the user to configure the inputs and outputs to adapt the controller to individual requirements.

Like all ComAp products, InteliCompact^{NT} features a powerful graphic display providing user-friendly information in an easy to understand format.

Real time clock and event and performance history log are priceless when it comes to troubleshooting. Remote control and monitoring is possible via analog / GSM modem or Internet.

Optional instrumentation of internal values on analog gauge makes it easy to use, even for untrained personnel.

MULTIPLE PARALLELING GEN-SETS WITH INTERNAL LOAD-SHARING CONTROLLER

InteliCompact^{NT} MINT

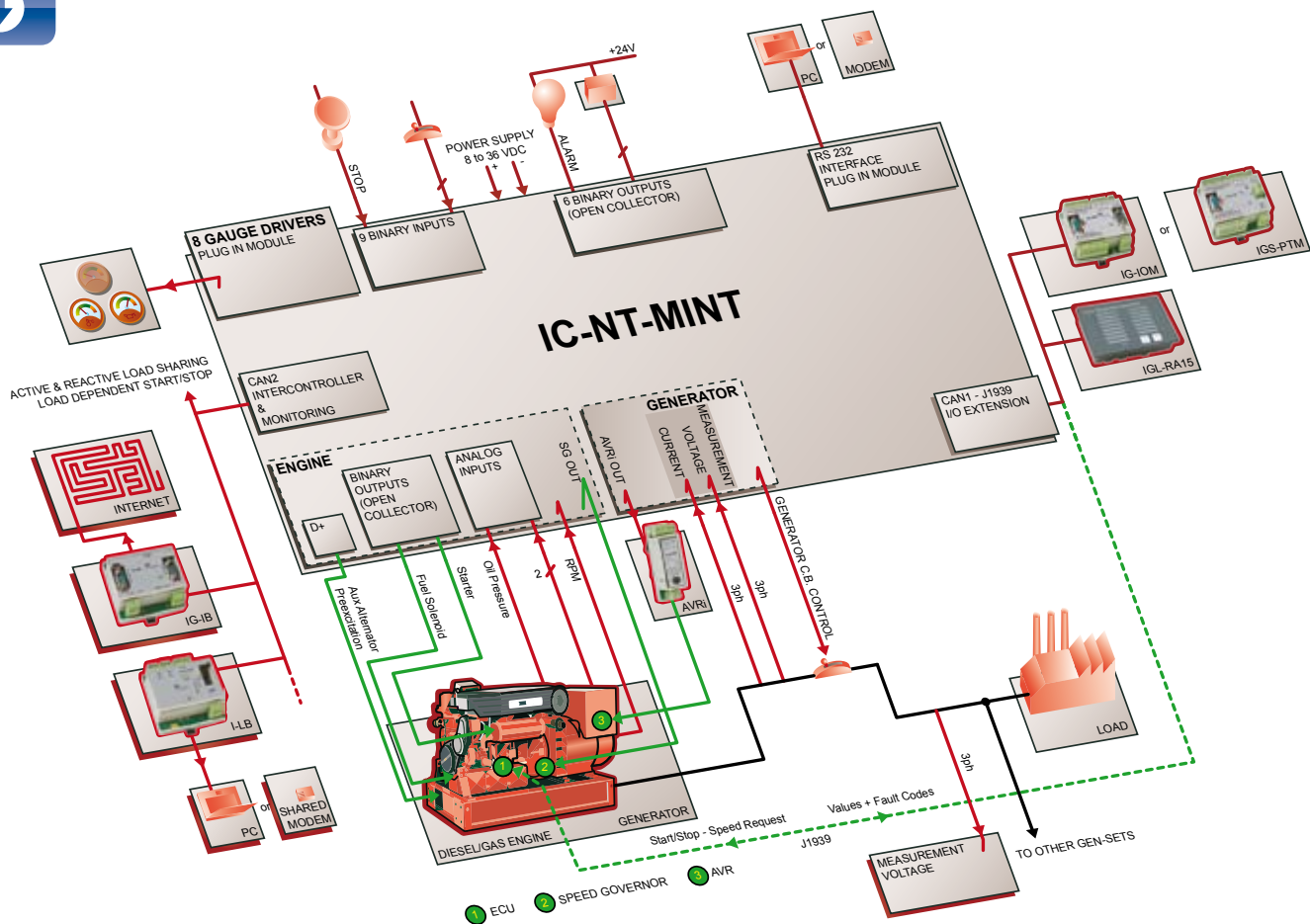## MULTIPLE PARALLELING GEN-SETS WITH INTERNAL LOAD-SHARING CONTROLLER
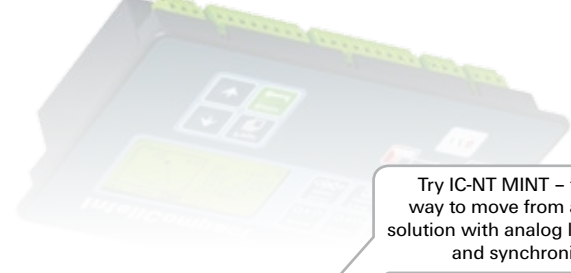
> Try IC-NT MINT – the easy way to move from a 'classic' solution with analog load sharers and synchronizers

Benefits

- Less wiring and components
- Less engineering and programming
- Remote monitoring reduced call-out costs of service engineers
- DC analog gauge outputs – simple connection to standard panel meters
- Direct communication with EFI engines
- Perfect price / performance ratio
- History log – easy troubleshooting and warranty claim handling

Features

- Generator measurements: U, I, kW, kVAr (3 phase, true RMS), Hz
- Bus measurements: U, I (3 phase, true RMS), Hz
- Generator protections (incl. Vectorshift)
- Engine protections
- Energy counters
- Automatic synchronizing and load control (via speed governor or ECU)
- AVR control (Volt and PF control)
- Digital active and reactive load sharing
- Load dependent automatic start / stop (power management)
- Wide range of communication interfaces – RS232, RS485, USB, GSM/analog modem, Ethernet
- Modbus
- Support of electronic controlled engines (J1939, Modbus) including diagnostic information in plain text.
- Event based history with capacity for cca 100 records. Date, time and system snapshot (freeze frame) in each record.
- 2 languages, user modifiable

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IC-NT-MINT

Basic technical specification

- Power supply 8–36 V
- 3 resistive analog inputs
- 9 binary inputs
- 8 open collector binary outputs (low side switches)
- Dimensions 180 × 120mm
- Sealed to IP65
- Operation temperature:
  - -20°C to +70°C standard version
  - -40°C to +70°C low temperature version

Extension modules

- IG-IOM   see page 46
- IGL-RA15   see page 46
- IGS-PTM   see page 47
- IL-NT AOUT8   see page 48

EFI engine support

- Cummins Modbus
- Engine specific J1939 for all major manufacturers
- Diagnostic messages in plain text

Communication modules and PC tools

- IB-Lite   see page 50
- IG-IB   see page 51
- I-LB / I-LB+   see page 52
- IL-NT RS232   see page 52
- IL-NT RS232-485   see page 52
- IL-NT S-USB   see page 52
- InteliMonitor   see page 58
- WinScope   see page 59
- LiteEdit   see page 62

Lebanon

InteliCompact^NT proves to be a great success

"Over more than nine years JDK has become recognized as the principal supplier of ComAp products throughout Lebanon delivering high quality control solutions with a reputation for accuracy and reliability as well as benefiting from full technical support of ComAp and distributor Huegli Tech. Testimony to this fact are tens of thousands of successful installations, which have included locomotive, industrial engines applications and generator sets in the region we cover.

With our long-standing experience of ComAp products, ComAp kindly asked us to test their latest controller – InteliCompact^NT. After thorough evaluation we found the new product to be the easiest controller to install and operate with the same high performance and quality found in the entire 'Inteli' family range."

Antoine Jabbour, *Managing Director*
www.jabbourpower.com

MainsCompact^{NT}

MAINS SUPERVISION CONTROLLER

The MainsCompact^{NT} controller is a member of the Compact family designed for control of up to 31 InteliCompact^{NT} MINT controller in parallel to mains operation or multiple AMF operation.

It evaluates mains conditions, controls the mains breaker and eventually also the master generator breaker, starts the gen-set group and reverse-synchronizes the group to the mains.

Built-in power switch (comparator) can be used for automatic starting of the gen-set group and shaving load peaks from the mains.
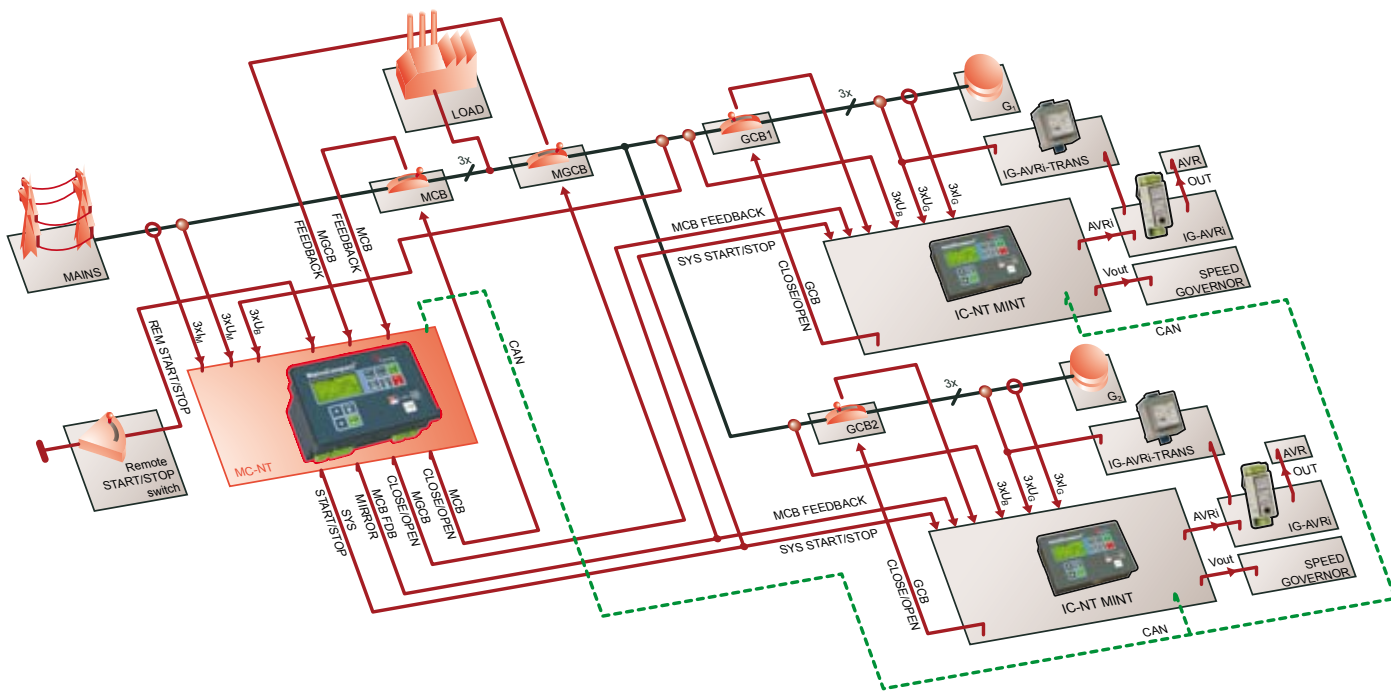
Benefits

- Easy solution, less wiring, less components
- Synchronizing of the gen-set group to the mains
- Wide range of communication capabilities
- Perfect price / performance ratio

Features

- Mains measurements: V, A, Hz, kW, kVA, PF, kWh, kVAhr
- Mains protections:
  - undervoltage, overvoltage
  - underfrequency, overfrequency
  - vector shift
  - binary input for external mains decoupling relay
- Bus measurements: V, Hz
- Basic functions:
  - Mains failure detection using integrated mains protections (voltage, frequency, phase shift)
  - MCB control
  - Optional MGCB control
  - Test of the Multi-AMF function (with or without load)
  - Soft loading / unloading
- Event-driven history file
- Configurable inputs and outputs
- Plug-in communication modules: RS232, RS485, USB device, Ethernet
- External communication modules (shared for all controllers in the site): RS232, RS485, Internet via Ethernet or PPP dial-up
- SMS and or e-mail sending when an alarm occurs (requires GSM modem and / or Internet module)
- Dimensions 180 × 120 mm
- IP65 front panel sealing

MainsCompact^{NT}

MAINS SUPERVISION CONTROLLER

Extension modules		Communication modules		PC tools	
● IG-IOM	see page 46	● IB-Lite	see page 50	● InteliMonitor	see page 58
● IGL-RA15	see page 46	● IG-IB	see page 51	● WinScope	see page 59
● IGS-PTM	see page 47	● I-LB / I-LB+	see page 52	● LiteEdit	see page 62
● IL-NT AOUT8	see page 48	● IL-NT RS232	see page 52		
		● IL-NT RS232-485	see page 52		
		● IL-NT S-USB	see page 52		

China

Successful OEM co-operation

„As one of the largest OEM´s for Volvo Penta in Asia we have chosen ComAp products as they feature functions essential for our market – such as Chinese / English languages, and they have proved excellent in communicating with Volvo engines".

Eric Wang
International Department Manager
www.baifapower.com

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.

InteliGen^NT

GENERAL PURPOSE HIGH-END GEN–SET CONTROLLER

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

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
- 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)
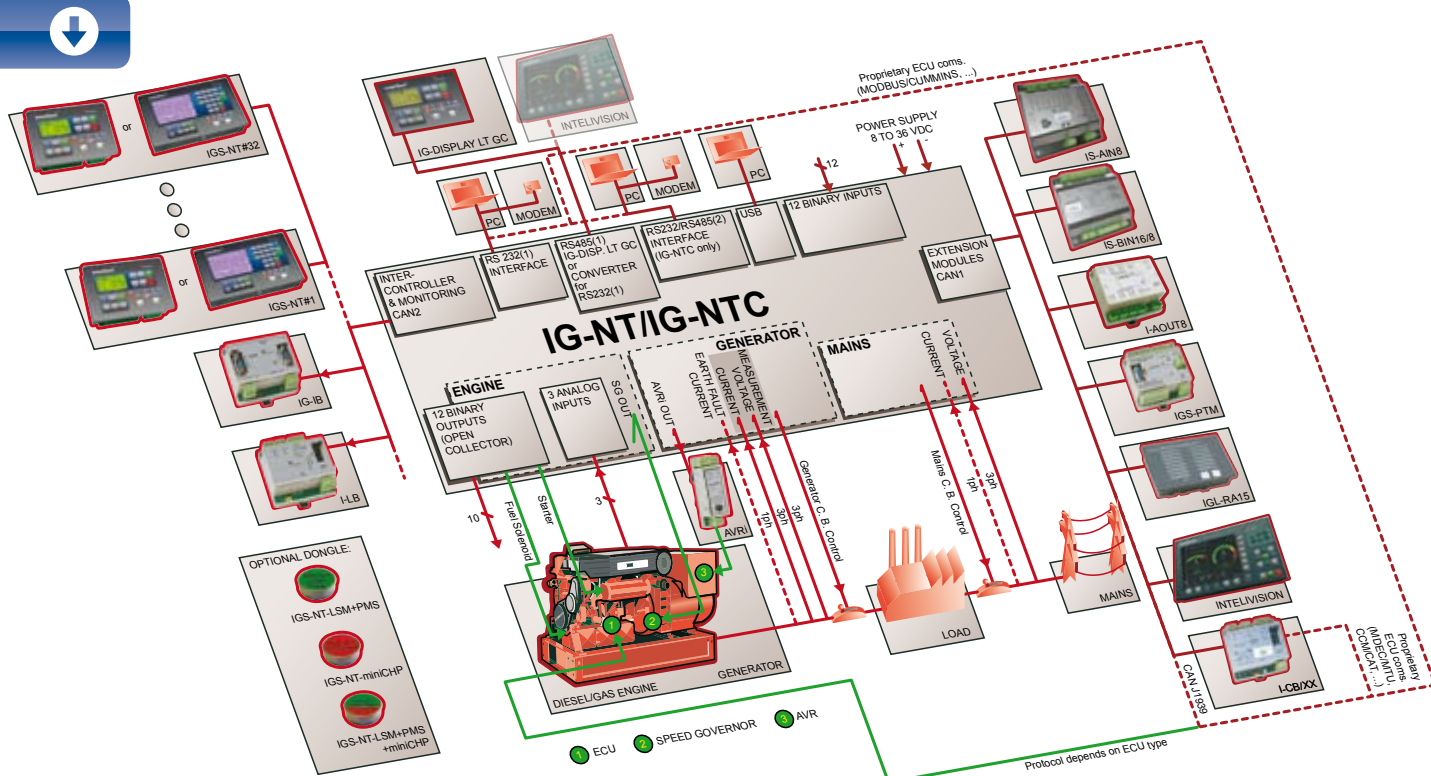- Dimensions 180 × 120 mm (front panel)
- Sealed to IP65

▷ **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

GENERAL PURPOSE HIGH-END GEN–SET CONTROLLER

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IG-NT/IG-NTC

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 / Warning / Off load / Slow stop / BreakerOpen&Cooldown / Shutdown / Mains protect / Sensor fail
- Additional 160 programmable protections configurable for any measured value to create customer-specific protections

Comm. modules and PC tools

- I-CR   see page 50
- IG-IB   see page 51
- I-LB / I-LB+   see page 52
- I-CB   see page 53
- InteliMonitor   see page 58
- InteliSupervisor   see page 59
- WinScope   see page 59
- GenConfig   see page 60

Extension modules and rem. displ.

- up to 4× I-AOUT8   see page 44
- IGL-RA15   see page 46
- up to 4× IGS-PTM   see page 47
- up to 10× IS-AIN8   see page 48
- up to 4× IS-BIN16/8   see page 49
- up to 2× InteliVision   see page 54
- IG-Display LT GC   see page 56

Upgrade kits

- **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
- **IGS-NT-miniCHP dongle:**
  - More PLC functions
- **IGS-NT-LSM+PMS+miniCHP dongle:**
  - Combination of the both dongles

HW modification codes

- Order code IG-NT (LT) (GC) (Marine) or IG-NTC (LT) (GC) (Marine)

LT = Low Temperature; display equipped with heating foil for operation down to −30 °C
GC = Graphical Characters; one additional font (12 × 12, e.g. Chinese or Korean) can be used on the display
Marine = Type approved version for Marine

Switzerland
Power plant

The power plant stands in the build-up area "Am Mark" in Heerbrugg and provides power for the nearby residential apartments and a large shopping centre.

The plant features an Olympian GEP400-2 diesel gen-set producing 400 kVA with control and monitoring from ComAp using InteliGen[NT] unit in MINT application with two InteliMains[NT] units in MGCB application.

InteliSys^{NT}

PREMIUM AND COGENERATION GEN–SET CONTROLLER

InteliSys^{NT} is an expandable controller for both single and multiple gen-sets operating in standby or parallel modes, especially in cogeneration (CHP) and other complex applications.

Detachable construction (consisting of IS-NT-BB and IS-Display or InteliVision) 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. Native co-operation of up to 32 gen-sets is a standard feature.

InteliSys^{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. The display on the basic version is capable of displaying graphical languages (e.g. Chinese).

ComAp is able to offer customized firmware solutions.

> However complex the installation, InteliSys^{NT} is the flexible and powerful solution you are looking for.
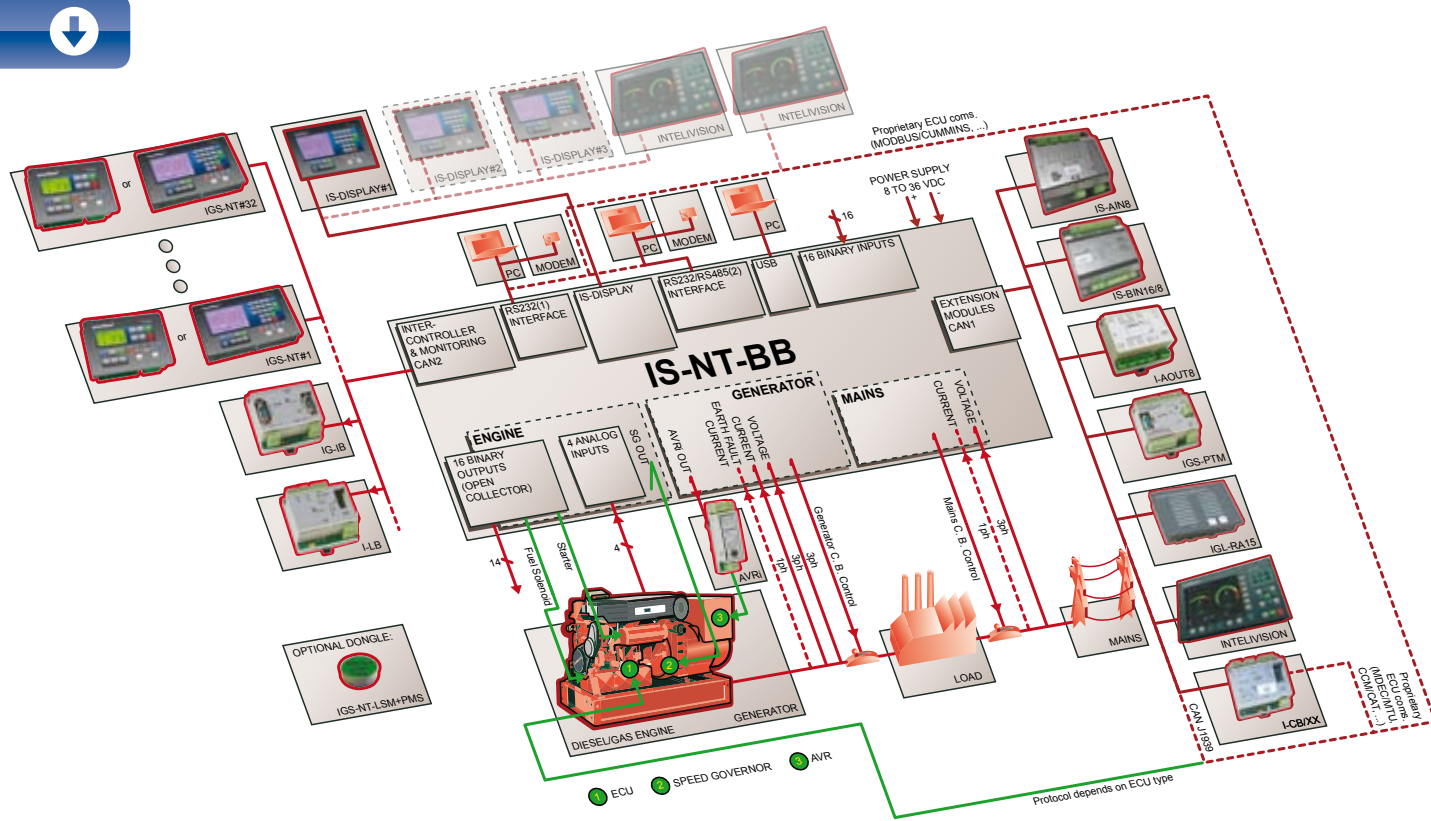
Benefits

- Support of engines with ECU (Electronic Control Unit)
- Excellent configurability to match customers' needs exactly
- Complete integrated gen-set solution incorporating built-in PLC 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

Features

- CHP support (programmable PID loops and other built-in PLC functions)
- Support of engines with ECU (J1939, Modbus and other proprietary interfaces); alarm codes displayed in text form
- Automatic synchronizing and power control (via speed governor or ECU)
- Baseload, Import / Export, TempByPower
- 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 A
- Inputs and outputs configurable for various customer needs
- 2× RS232 / RS485 interface with Modbus protocol support; Analog / GSM / ISDN / CDMA modem communication support; SMS messages; ECU Modbus interface; secondary RS485 converter is isolated
- 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 units (3× IS-Display)
- USB 2.0 slave interface
- Dimensions 284 × 180 mm (front panel)
- Sealed to IP65

PREMIUM AND COGENERATION GEN–SET CONTROLLER

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 / Warning / Off load / Slow stop / BreakerOpen&Cooldown / Shutdown / Mains protect / Sensor fail
- Additional 160 programmable protections configurable for any measured value to create customer-specific protections

Comm. modules and PC tools

- I-CR — see page 50
- IG-IB — see page 51
- I-LB / I-LB+ — see page 52
- I-CB — see page 53
- InteliMonitor — see page 58
- InteliSupervisor — see page 59
- WinScope — see page 59
- GenConfig — see page 60

Extension modules and rem. displ.

- up to 4× I-AOUT8 — see page 44
- IGL-RA15 — see page 46
- up to 4× IGS-PTM — see page 47
- up to 10× IS-AIN8 — see page 48
- up to 4× IS-BIN16/8 — see page 49
- up to 6× InteliVision — see page 54
- IS-Display — see page 56

Upgrade kit

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

HW modification codes

- Order code IS-NT (LT) (Marine) – product that consists of two other products:
  - **IS-Display** (LT) (Marine) – local or remote display
  - **IS–NT–BB** (Marine) – Base Box; the unit without display for switchboard mounting

LT = Low Temperature; display equipped with heating foil for operation down to −30 °C
Marine = Type approved version for Marine

IGS-NT On-line StarterKit

InteliGen^NT InteliSys^NT TRY ONLINE

Internet Access Simulator for IGS-NT Controllers

- Accessing the IG-NT or IS-NT controller remotely from an arbitrary PC around the globe
- Testing the IG-NT or IS-NT controller functionality and setting it on-line

Visit our web page to get details: **www.comap.cz/onlinekit**

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InteliMains^NT

MAINS SUPERVISION CONTROLLER

InteliMains^NT is designed for multiple (up to 31) gen-sets operating in parallel to mains. The InteliMains^NT controller connects the group of gen-sets to the mains. It can serve as a bus-tie synchronizing controller between two groups of gen-sets.

InteliMains^NT provides 3 applications for different site topology: with MCB (Mains Circuit Breaker), with MCB and MGCB (Master Generator Circuit Breaker) or with BTB (Bus-tie Breaker). According to the type of application, it controls MCB, MGCB or BTB and it allows reverse synchronizing of the gen-set group operating in multi-island mode to the mains (MCB application), to another group of gen-sets (BTB application) or forward synchronizing of the gen-sets (MGCB application). The controller measures mains power, power factor, reactive and apparent power and 3-phase system import / export.

InteliMains^NT controller is equipped with a powerful graphic display featuring icons, symbols and bar graphs for intuitive operation, which together with high functionality set new standards in gen-set control.

Benefits

- Easy solution even for complex systems with groups of gen-sets – less wiring and components
- Can be used as bus-tie synchronizer
- Graphical site schematic for easy site overview – aggregates in one place all important system parameters
- Many types of communication – easy supervision and servicing
- Perfect price / performance ratio

Features

- Integrated PLC programmable functions (same size as IS-NT)
- Selectable measurement ranges for AC voltages and currents 120 / 277 V, 0–1 / 0–5 A = High voltage applications support
- Inputs and outputs configurable for various customer needs
- RS232 / RS485 interface with Modbus support; Analog / GSM / ISDN / CDMA modem support; SMS messages
- The RS232 / RS485 interface can serve as a bridge to all other controllers at the site (via CAN bus)
- Event-based history (up to 500 records) with customer-selectable list of stored values; RTC; statistic values
- Interface to remote display unit IG-Display LT GC
- Dimensions 180 × 120 mm (front panel)
- Sealed to IP 65

▷ **MCB+MGCB mode**
- AMF function based on mains failure, outputs a signal to start the gen-set group
- Many SPtM-equivalent mains parallel modes (SysBaseload, Analog Extern SysBaseload, Import / Export, Analog Extern Import / Export, Temp By Power)
- Peak shaving
- Test mode (Test on load for the complete gen-set group)
- Two application layouts – MCB only or MCB+MGCB control (see schematics)
- Mains measurement: U, I, Hz, kW, kVAr, kVA, PF, kWh exp., kWh imp., kVAhr exp., kVAhr imp.
- Bus measurement: U, Hz
- Sum gen-sets kWh and kVAhr
- Selectable partial or full MCB and / or MGCB control
- Load Shedding – 3 steps; selectable based on gen-sets power or mains import
- High voltage application support – AC voltage measurement range selectable 277 / 120V

▷ **Bus-Tie controller mode**
- Bus Left measurement: U, I, Hz, kW, kVAr, kVA, PF, kWh exp., kWh imp., kVAhr exp., kVAhr imp.
- Bus Right measurement: U, Hz
- Manual or automatic (intelligent) selection of the gen-set group (side) to be influenced during synchronizing
- Selectable partial or full BTB control
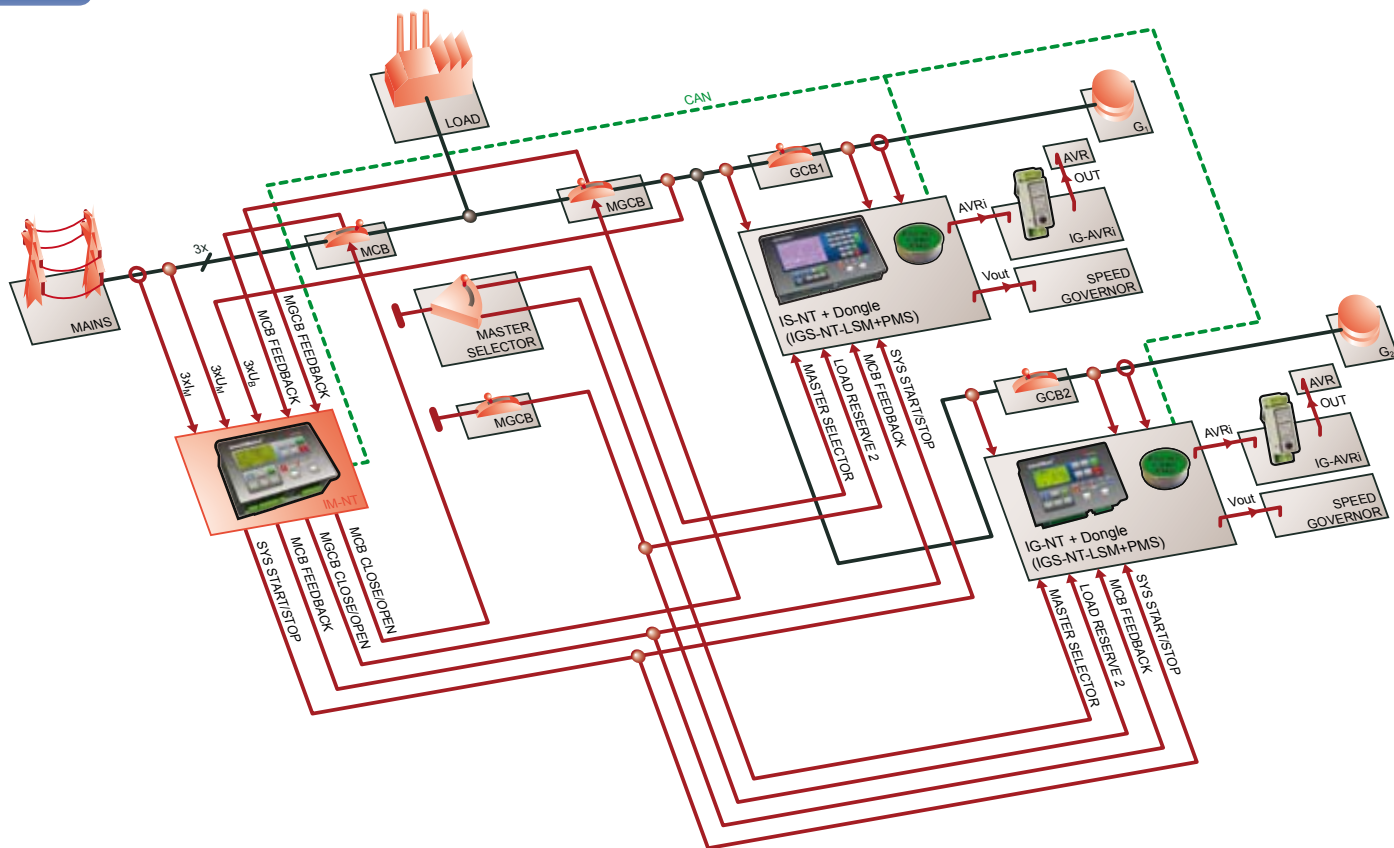
MAINS SUPERVISION CONTROLLER

Integrated fixed and configurable protections

- 3 phase integrated mains protections (U + f), voltage unbalance
- Mains IDMT overcurrent + Shortcurrent protection, current unbalance, Mains Import / Export
- Vector shift protection
- All binary inputs free configurable for various protection types: Warning / Write history / Write history + Active call / Alarm list / Shutdown / Mains protect / Mains protect with fault reset / Sensor fail
- Phase sequence supervision

Comm. modules and PC tools

- I-CR   see page 50
- IG-IB   see page 51
- I-LB / I-LB+   see page 52
- InteliMonitor   see page 58
- InteliSupervisor   see page 59
- WinScope   see page 59
- GenConfig   see page 60

Extension modules and rem. displ.

- I-AOUT8   see page 44
- IGL-RA15   see page 46
- IGS-PTM   see page 47
- IS-AIN8   see page 48
- IS-BIN16/8   see page 49
- IG-Display LT GC   see page 56

The system was designed and installed by ComAp Systems CZ (www.comapsystems.com).

Czech Republic
Installation in Baxter

This production plant is fed from 2 mains transformers with emergency power provided by 2 gen-sets CAT 890 kW. The Bus-bar creates an „H" configuration, 5 power breakers are operated. The control system consists of two InteliMains[NT] units for utility monitoring and synchronization alongside two InteliGen[NT] gen-set controllers for isochronous kW and kVAr sharing. The InteliGen[NT] units itself are installed alongside the generators, whilst their remote IG-Display screens are located in the switchroom. This arrangement provides a number of switching scenarios and the ComAp control system is closely integrated with building load management PLC and a visualization panel. The installation benefits from 24/7 supervision and a secured internet connection ensures instant diagnosis when required.
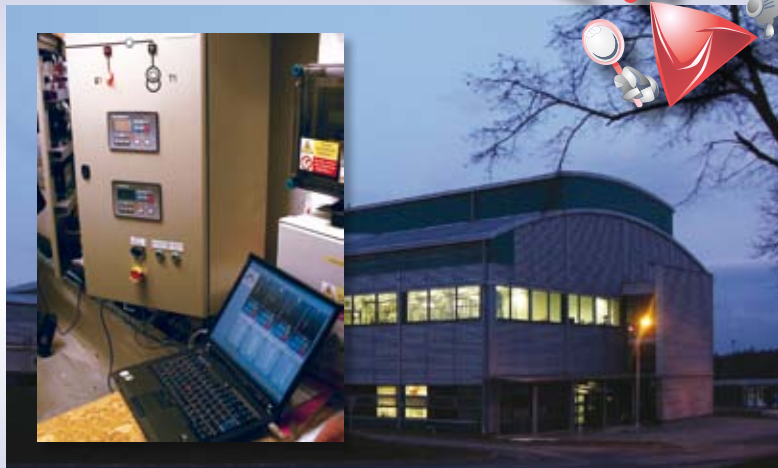
InteliGen[NT] 400Hz (IG-NT 400Hz) is a comprehensive controller designed for aircraft ground power gen-sets operating at 400 Hz frequency.

IG-NT 400Hz consists a built-in synchronizer and digital isochronous load sharer which allow a total integrated solution for gen-sets island parallel run. Native cooperation of up to 32 gen-sets is a standard feature.

IG-NT 400Hz supports many standard ECU types and is especially designed to easily integrate new ones.

The gen-set can be operated manually using the controller front panel or remotely from external buttons or via modem, Internet or GSM modem.

Power cable connection to the aircraft is protected by plug feedback information with two different methods of plug feedback detection.

IG-NT 400Hz inputs / outputs configurability enables large customizing to different types of land aircraft applications.

The controller is equipped with a powerful graphic display featuring icons, symbols and bar graphs for intuitive operation.

IG-NT 400Hz

CONTROLLER FOR AIRCRAFT GROUND POWER 400 HZ GEN-SETS

IG-NT 400Hz

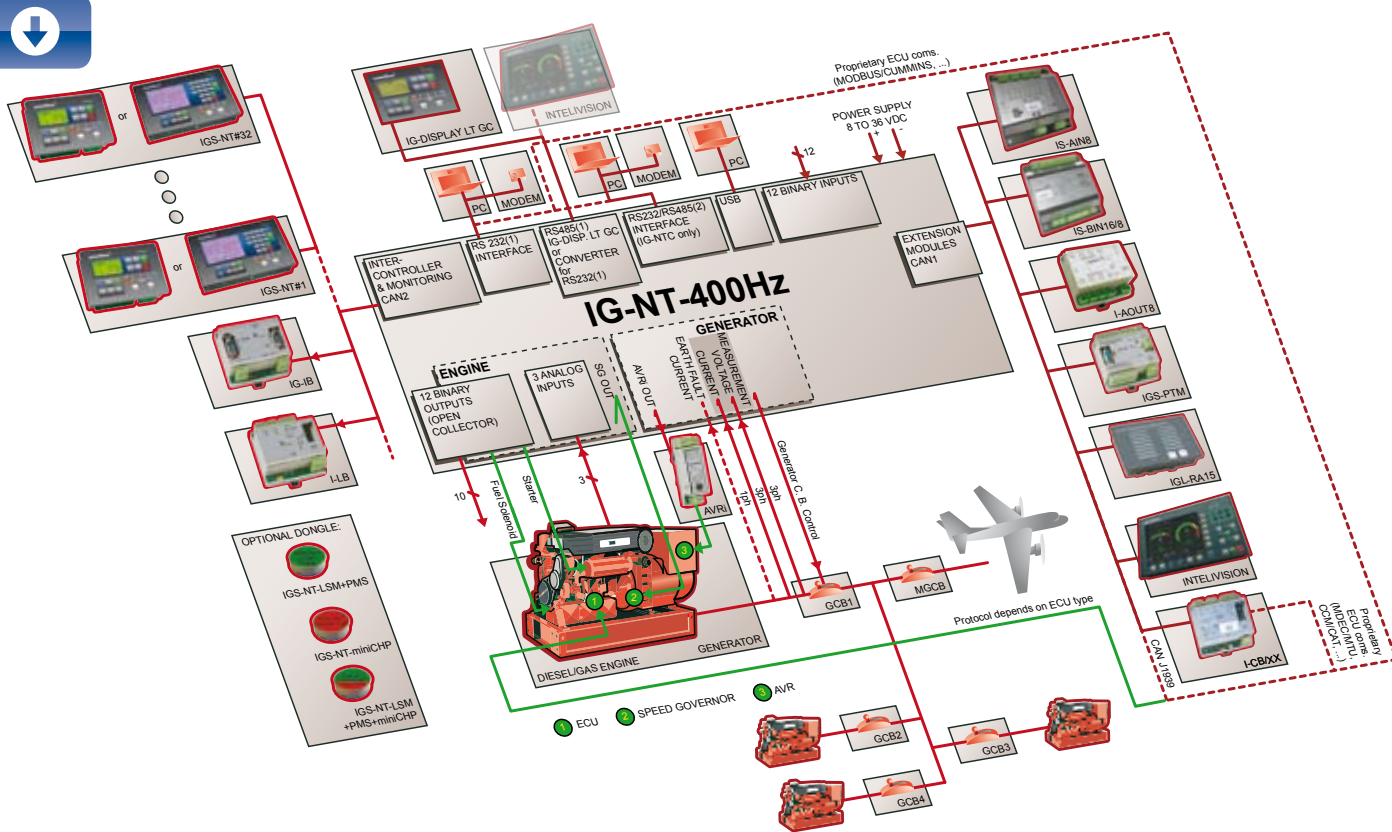**CONTROLLER FOR AIRCRAFT GROUND POWER 400HZ GEN-SETS**

Benefits

- Support of engines with ECU (Electronic Control Unit)
- Less wiring and external components
- Economic switchboard design
- Complete integrated solution and signal sharing via CAN bus – minimum external components needed
- Less engineering
- Full communication – easy service and monitoring
- Perfect price / performance ratio
- Powerful InteliMonitor and GenConfig software
- Gen-set performance log for easy problem tracking

Features

- Engine control and protection
- Display indication of all measured and calculated values
- Push buttons for manual control
- Warm-up and cooling functions
- Load bank TEST mode
- Island parallel operation (MINT)
- Automatic synchronizing (via speed governor or ECU)
- Load sharing, VAr sharing
- Power management
- Frequency measuring range 320 – 480 Hz (400Hz ±20 %)
- RS232 / RS485 interface with Modbus protocol support; Analog / GSM / ISDN / CDMA modem communication support; SMS messages, ECU Modbus interface
- Event based history file (up to 500 records) with customer selectable list of stored values, RTC, statistics
- Integrated PLC programmable functions
- Interface to remote display unit (IG-Display)
- Dimensions 180 × 120 mm (front panel)
- Sealed to IP65 (front panel)

Integrated fixed and configurable protections

- IDMT overcurrent + Shortcurrent protection
- Overload protection
- Reverse power protection
- 3 phase integrated mains protections (U + f)
- Vector shift protection
- All binary / analog inputs free configurable for various protection types: HistRecOnly / Alarm Only / Warning / Off load / Slow stop / BreakerOpen&Cooldown / Shutdown / Mains protect / Sensor fail
- Additional 160 programmable protections configurable for any measured value to create customer-specific protections

Comm. modules and PC tools

- **I-CR**   see page 50
- **IG-IB**   see page 51
- **I-LB / I-LB+**   see page 52
- **I-CB**   see page 53
- **InteliMonitor**   see page 58
- **GenConfig**   see page 60

Extension modules and rem. displ.

- up to 4× **I-AOUT8**   see page 44
- **IGL-RA15**   see page 46
- up to 4× **IGS-PTM**   see page 47
- up to 10× **IS-AIN8**   see page 48
- up to 4× **IS-BIN16/8**   see page 49
- up to 2× **InteliVision**   see page 54
- **IG-Display LT GC**   see page 56

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
- **IGS-NT-miniCHP dongle:**
  - More PLC functions
- **IGS-NT-LSM+PMS+miniCHP dongle:**
  - Combination of the both dongles

HW modification codes

- Order code IG-NT (LT) (GC) (Marine) or IG-NTC (LT) (GC) (Marine)

LT = Low Temperature; display equipped with heating foil for operation down to −30 °C
GC = Graphical Characters; one additional font (12 × 12, e.g. Chinese) can be used on the display
Marine = Type approved version for Marine

Turkey
Excellent online communication

"My experience of using ComAp products is very positive as they have many excellent features – all of which we use in Deren Packing. Probably the best of them are the online communication and software programmes InteliMonitor and WinScope, as they provide useful reports on history, operating data, set points and cost analyses for the generators."

Alparslan Yolcu
Maintenance Manager
www.deren.com.tr

ComAp   27

InteliGen^NT GeCon

GENERATOR CONTROLLER FOR MARINE AND LAND BASED APPLICATIONS

InteliGen^NT GeCon is a comprehensive generator controller for single or multiple gen-sets operating in standby or parallel modes.

A built-in synchronizer and a digital isochronous load sharer allow a total integrated solution for generators in standby, island parallel or mains parallel.

Native co-operation of up to 32 ComAp generator and engine controllers is a standard feature. InteliGen^NT GeCon configuration is easily done via GenConfig PC software. Powerful graphic display with user-friendly control allows even new users to quickly find the required information.

Approved by:

Benefits

- Independent Generator and Engine controller
- Excellent configurability allows matching exactly the customers' needs
- Complete integrated generator solution
- Load sharing and full Power management for multiple applications available
- Event driven History record – easy backtracking and problem solving
- Many types of communication – easy supervision and servicing
- Slave panel available – economical solution of remote control
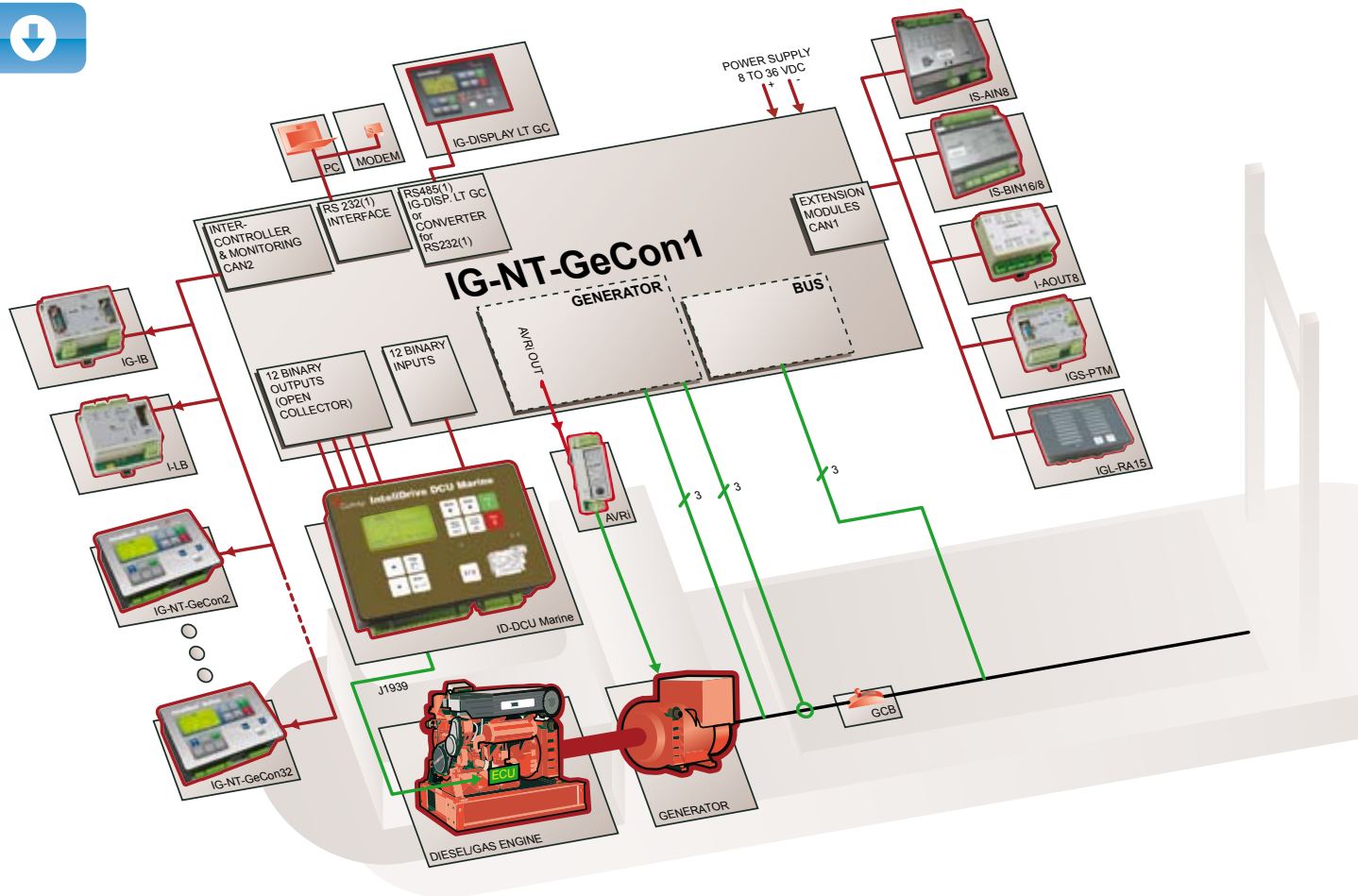- Built-in PLC basic functions

Features

- The independent engine controller (e.g. ID-DCU) is expected
- 12 binary inputs, 12 binary outputs and 4 analogue inputs fully configurable
- Configurable protections type Warning, Shutdown, Off load, Slow stop
- RS232 / RS485 / Modbus / modem / Internet connection
- 7 level password protection
- Graphic back-lit LCD display with icons and bar graphs
- Panel LED indicators
- Push buttons for simple control and adjustment
- Internal – configurable basic PLC functions
- Sealed membrane panel to IP65
- Operating temperature: -20°C to +70°C

GENERATOR CONTROLLER FOR MARINE AND LAND BASED APPLICATIONS

POWER SUPPLY
8 TO 36 VDC

IS-AIN8

IG-DISPLAY LT GC

IS-BIN16/8

PC MODEM

EXTENSION
MODULES
CAN1

I-AOUT8

INTER-
CONTROLLER
& MONITORING
CAN2

RS 232(1)
INTERFACE

RS485(1)
IG-DISP. LT GC
or
CONVERTER
for
RS232(1)

IG-NT-GeCon1

GENERATOR   BUS

IGS-PTM

IG-IB

12 BINARY
OUTPUTS
(OPEN
COLLECTOR)

12 BINARY
INPUTS

AVRI OUT

IGL-RA15

I-LB

3   3   3

IG-NT-GeCon2

AVRi

ID-DCU Marine

IG-NT-GeCon32

J1939

ECU

GCB

DIESEL/GAS ENGINE

GENERATOR

Generator monitoring and control

- Complete generator measurement: U, I, Hz, kW, kVAr, kVA, PF, kWh, kVAhr
- Automatic or Manual operational mode
- Automatic synchronizing and Power control (via Engine controller)
- Load sharing, Baseload and Import / Export modes
- Voltage control and VAR sharing
- Power management: kW, kVA or % load based (with IGS-NT-LSM+PMS dongle)
- All binary / analog inputs are configurable for various protection types

Generator protections

- 3 phase generator over / undervoltage
- 3 phase generator over / underfrequency
- IDMT over-current and short-current
- Overload and Reverse power

Accessories

- **I-AOUT8**   see page 44
- **IGL-RA15**   see page 46
- **IGS-PTM**   see page 47
- **IS-AIN8**   see page 48
- **IS-BIN16/8**   see page 49
- **IG-IB**   see page 51
- **I-LB/I-LB+**   see page 52
- **IG-Display LT GC** see page 56

Communication

- RS232 / RS485 interface with Modbus support
- Analog / GSM / ISDN / CDMA modem support
- Ethernet / Internet interface via IG-IB module

PC tools

- **InteliMonitor**   see page 58
- **GenConfig**   see page 60

Norway
Northern Corona

Northern Corona is a supply vessel owned by Trico Shipping AS operating in Norway and was recently upgraded with a new generator synchronizing and load sharing system supplied by Industrimarin.

They have also specified and installed the GeCon controller system for several customers' vessels for "on board" generator applications as they provide a higher level of flexibility, as Bjarte explains – *"We never stop being surprised over the flexibility that this controller offers"*

Bjarte Steen
Director
www.industrimarin.com

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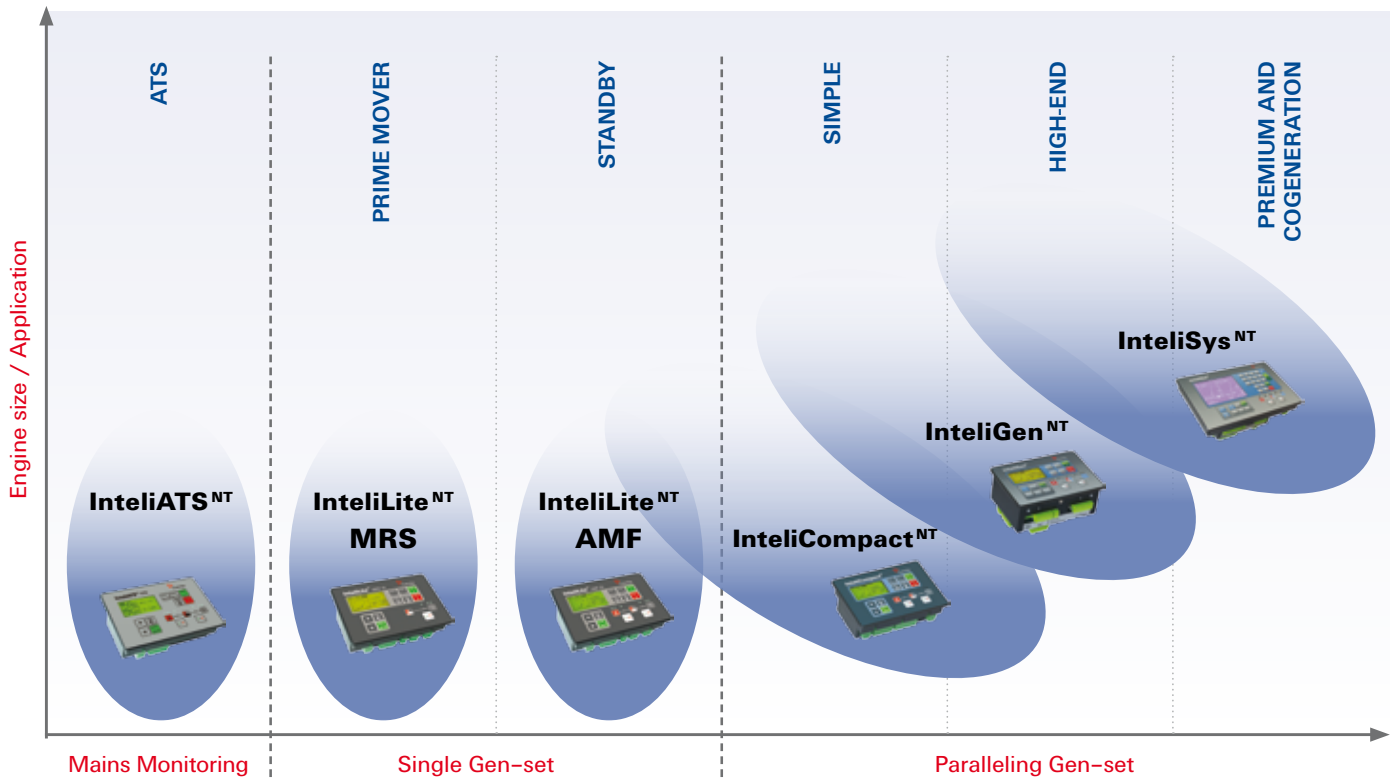|	InteliATS NT	InteliLite NT	InteliLite NT	InteliLite NT
MODEL	STD, PWR	MRS 10, MRS 11	MRS 15, MRS 16	AMF 20, AMF 25
Binary Inputs/Outputs	3/4, 7/7	6/6	6/6	7/7
Analog Inputs/Outputs	–	3/0	3 (7)[5] / 1[5]	3 (7)[5] / 1[5]
AMF function	●	–	–	●
GCB control with feedback	●[1]	–[4], ●	–[4], ●	●
Integrated PLC	–	–	–	–
Input configuration	●	●	●	●
Output configuration	●	●	●	●
Voltage measurement Gen / Mains (bus)	3 ph / 3 ph	3 ph / –	3 ph / –	3 ph / 3 ph
Current measurement	3 ph[1]	3 ph	3 ph, IDMT overcurrent	3 ph, IDMT overcurrent[6]
kW / kWh / kVA measurement	●[1] / ●[1] / ●[1]	● / – / ●	● / ● / ●	● / ●[6] / ●
Extension modules and remote displays	IL-NT RD (SW), IL-NT AOUT8[1]	IL-NT RD (SW), IL-NT AOUT8	IGL-RA15, IG-IOM, IGS-PTM, IL-NT RD (SW), IL-NT AOUT8	IGL-RA15[6], IG-IOM[6], IGS-PTM[6], IL-NT RD (SW), IL-NT AOUT8
Communication modules	IB-Lite[1], IL-NT RS232, IL-NT RS232-485, IL-NT S-USB,	IB-Lite, IG-IB, IL-NT RS232, IL-NT RS232-485, IL-NT S-USB	IB-Lite, IG-IB, IL-NT RS232, IL-NT RS232-485, IL-NT S-USB	IB-Lite, IG-IB, IL-NT RS232, IL-NT RS232-485, IL-NT S-USB
Communication interfaces	RS232, Modbus	RS232 (external AT-LINK CONV cable needed)	RS232, CAN for periph., Modbus	RS232, CAN for periph.[6], Modbus[6]
Modem support	o	o	o	o
Active call/SMS support	o[1]	o	o	o
Synchronizing + Mains parallel operation	–	–	–	–
Multiple operation + Power Management System	–	–	–	–
Display	LCD 128×64	LCD 128×64	LCD 128×64	LCD 128×64
Battery charging alternator circuit (D+)	●	●	●	●
Multilanguage support	Western Europe, Eastern Europe, Cyrillic, Turkish, GC optional support[2]	Western Europe, Eastern Europe, Cyrillic, Turkish, GC optional support[2]	Western Europe, Eastern Europe, Cyrillic, Turkish, GC optional support[2]	Western Europe, Eastern Europe, Cyrillic, Turkish, GC optional support[2]
Direct Bus–tie application support	–	–	–	–
Binary / analog signal sharing	–	–	–	–
History (max records)[3]	119[1]	–	119	119[6]

KEY

● included
– excluded
o optional – plug-in module required

[1] only PWR model
[2] covers any language with "Graphical Chars" like Chinese, Korean, etc.
[3] depends on number of values in history record
[4] automatic GCB control without feedback
[5] with IG-IOM or IGS-PTM
[6] only AMF 25 model
[7] requires IL-NT AOUT8
[8] with IS-AIN8, IS-BIN16/8, I-OUT8 or IGS-PTM
[9] more PLC blocks are available with IGS–NT–miniCHP dongle
[10] including modems without HW control signals

InteliCompact NT	InteliCompact NT	InteliGen NT	InteliGen NT	InteliSys NT
SPtM	MINT		NTC	
9/8 (17/16)[5]	9/8 (17/16)[5]	12/12 (108/108)[8]	12/12 (108/108)[8]	16/16 (112/112)[8]
3 (7)[5] / 8[7]	3 (7)[5] / 8[7]	3/0 (83/32)[8] (configurable as tristate)	3/0 (83/32)[8] (configurable as tristate)	4/1 (84/33)[8] (configurable as tristate)
●	–	●	●	●
●	●	●	●	●
–	–	Standard[9]	Standard[9]	Extended
●	●	●	●	●
●	●	●	●	●
3 ph / 3 ph	3 ph / 3 ph	3 ph / 3 ph	3 ph / 3 ph	3 ph / 3 ph
3 ph, IDMT overcurrent	3ph, IDMT overcurrent	3ph / 6w IDMT overcurrent	3ph / 6w IDMT overcurrent	3ph / 6w IDMT overcurrent
● / ● / ●	● / ● / ●	● / ● / ●	● / ● / ●	● / ● / ●
IGL-RA15, IG-IOM, IGS-PTM, IL-NT AOUT8	IGL-RA15, IG-IOM, IGS-PTM, IL-NT AOUT8	IS–AIN8, IS–BIN16/8, I–AOUT8, IGL–RA15, IGS–PTM, IG-Display LT GC, InteliVision	IS–AIN8, IS–BIN16/8, I–AOUT8, IGL–RA15, IGS–PTM, IG-Display LT GC, InteliVision	IS–AIN8, IS–BIN16/8, I–AOUT8, IGL–RA15, IGS–PTM, IS–Display, InteliVision
IB-Lite, IL-NT RS232, IL-NT RS232-485, IL-NT S-USB	IB-Lite, IL-NT RS232, IL-NT RS232 - 485, IL-NT S-USB	I–LB/ I–LB+, IG–IB, I–CR, I–CB	I–LB/ I–LB+, IG–IB, I–CR, I–CB	I–LB/ I–LB+, IG–IB, I–CR, I–CB
CAN1 (peripheral modules, ECU), CAN2 (controller network), other interface depends on installed comm. module	CAN1 (peripheral modules, ECU), CAN2 (controller network), other interface depends on installed comm. module	RS232/RS485, Modbus, CAN, CAN for periph.	2× RS232/RS485, Modbus, CAN, CAN for periph., USB 2.0	2× RS232/RS485, Modbus, CAN, CAN for periph., USB 2.0
o	o	●[10]	●[10]	●[10]
o	o	●	●	●
●	●	●	●	●
–	●	o	o	o
LCD 128×64	LCD 128×64	LCD 128×64	LCD 128×64	LCD 320×240
●	●	●	●	●
Western Europe, Eastern Europe, Cyrillic, Turkish, GC optional support[2]	Western Europe, Eastern Europe, Cyrillic, Turkish, GC optional support[2]	Western Europe, Eastern Europe, Cyrillic, Turkish, GC optional support[2]	Western Europe, Eastern Europe, Cyrillic, Turkish, GC optional support[2]	Western Europe, Eastern Europe, Cyrillic, Turkish, GC optional support[2]
–	–	●	●	●
–	–	●	●	●
100	100	500	500	1000

Engine size / Application

ATS

PRIME MOVER

STANDBY

SIMPLE

HIGH-END

PREMIUM AND COGENERATION

InteliSys NT

InteliGen NT

InteliATS NT

InteliLite NT
MRS

InteliLite NT
AMF

InteliCompact NT

Mains Monitoring   Single Gen–set   Paralleling Gen–set

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InteliVision demo simulator
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View screens in full colour and assess product features

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Troubleshooting. Special manuals with a complete list of typical questions and answers

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ComAp Members Club
▷ Join our special "family club" of ComAp products users and receive product update information, software updates and special files as well as access to our on-line training.

About ComAp

ComAp

ComAp is a dynamic international company with a solid reputation for delivering innovative electronic solutions to the power generation, industrial engine and equipment markets. By providing customers with state-of-the-art products, ComAp has built a name for delivering excellent reliability and good value.

Excellent and reliable product solutions

ComAp specializes in creating electronic control and management solutions for use in the power generation industries and drive power markets. Our portfolio of products, software and accessories is designed to support emergency power, standby power generation and engine driven applications all over the world. We also work closely with our customers to develop unique customized and turn key solutions for ordinary and extraordinary applications delivering high standards of excellence on every project.

ComAp products represent some of the most reliable solutions on the market today. Every component and product undergoes the most rigorous standards during manufacture, with every stage being undertaken in accordance with international ISO 9001 certification. Our products are backed with the approvals from major Marine Certification Societies. Accreditation at the highest-level breeds confidence, and every ComAp product is supplied with an appropriate warranty and after-sales support for complete peace of mind.

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ComAp products are directly available in more than 60 countries, spanning almost every continent in the world. Through our professional and highly dedicated global distributor network we can satisfy customers' needs, however challenging.

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People make the difference

ComAp's key strengths are flexibility, experience, knowledge and enthusiasm. This blend of values defines our personality and gives you the assurance of a truly honest and positive relationship. By supporting our people, investing in their development and encouraging creativity, our teams work hard to find new opportunities, technologies and solutions that enable us to successfully help our customers solve their problems effectively.

At ComAp, we believe passionately in the importance of continuously developing new technology along with forward thinking software and hardware to maintain the enviable position as worldwide leader in communication and control for power generation and drive power applications.

At the heart of this process is a strong desire to exceed our customers' expectations by finding outstanding solutions for them and drawing upon the company's most valuable asset – people. Over 80 % of ComAp employees are graduates with specialized electronic and programming knowledge appropriate to the innovative development of market-orientated engine management systems. This unique know-how is matched by ComAp's significant investment at every stage of the research and development process, resulting in the creation of leading edge modern development facilities. ComAp consistently set high standards, reflected in our third place in the 'Best Employers Study in the Czech Republic' (conducted by Hewitt Associates) in consecutive years (2006 and 2007).

ComAp Systems

ComAp's expertise extends beyond innovative controllers to include a range of subsidiary businesses specializing in related services including bi-fuel conversions, power energy systems solutions and electronic component distribution.

These subsidiaries are located in key strategic regions around the world ensuring our customers benefit from local capability coupled with global reach. Most of them are named ComAp Systems and more information is available on each business at **www.comapsystems.com**.

Key Milestones

1991
Establishment of ComAp.

1993
Successful commissioning of four Gen-set Control Systems made by ComAp on Mediterranean islands.

1994
MX controller, the second generation of ComAp's gen-set control systems, was launched.

1996
PX, the revolutionary gen-set controller with configurable input and outputs, was developed.

1999
The strategic co-operation with HuegliTech Company significantly increased our distribution network.

2000
InteliGen, the first member of the Inteli family and flagship of our gen-set control systems, was released.

2001
ComAp Ltd. – 100 % UK based ComAp subsidiary was established close to Bristol.

2002
InteliSys, our top end product dedicated to CHP and large engine control applications, was released. New mid-range product InteliLite was launched for AMF and MRS applications.

2004
InteliDrive controller for non gen-set, engine driven applications was released.

2006
ComAp LLC – ComAp subsidiary to promote products in the USA and Canada.

2007
InteliVision – the first color display unit in power generation field.

2008
InteliCompact – controller for simple paralleling gensets.

ComAp

We are looking
forward to your visit.

Manufacturer

ComAp, spol. s r. o.

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