

PRODUCT GUIDE

Electronic edition

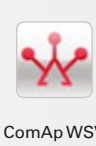




Take control of your gen-set or engine using the free remote monitoring feature

“Smart and easy”

made possible by ComAp unique technology.



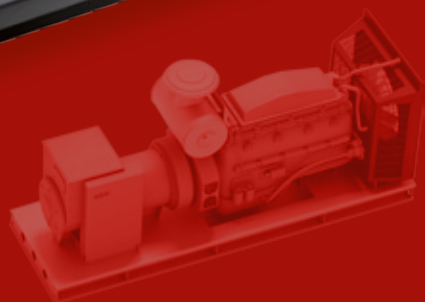
R E M O T E C O M M S M A D E E A S Y



Intelinano^{NT}

GEN-SET CONTROLLER

... more on page 8



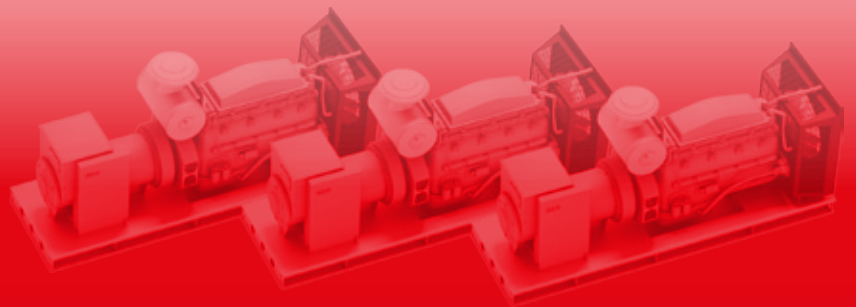
Intelipro





Inteligen^{NTC} BaseBox & IntelliVision 5

COMPLEX PARALLEL GEN-SET CONTROLLER WITH DETACHABLE COLOUR DISPLAY



Get more info about new controller on page 24 and new colour display on page 58



IntelliDrive Nano

UTILITY PROTECTION RELAY

... more on page 37



ENGINE CONTROLLER FOR PUMPS AND COMPRESSORS

... more on page 40



WATERPROOF





WELCOME TO OUR PRODUCT GUIDE

The ComAp Product Guide is more than just an overview of ComAp products – it's an illustration of the continued commitment of the many dedicated people at ComAp who continually develop new ways to support an ever-growing range of solutions for an ever-increasing global customer base.












As a result the guide is bigger and better than ever. It promises a flexible approach to engine and generator management through solutions deeply embedded with the latest web based communication technology to bring unrivalled efficiency, convenience and cost saving to standard operations. We've also extended our range and capability further with updated software, touch screen technology, bi-fuel packages and a family of compact and cost-effective control units.

Beyond innovative products, ComAp customers can be sure of outstanding service. Our global distribution network is dedicated to delivering an excellent experience with fully trained and knowledgeable partners providing responsive technical support where and when it's needed anywhere in the world.

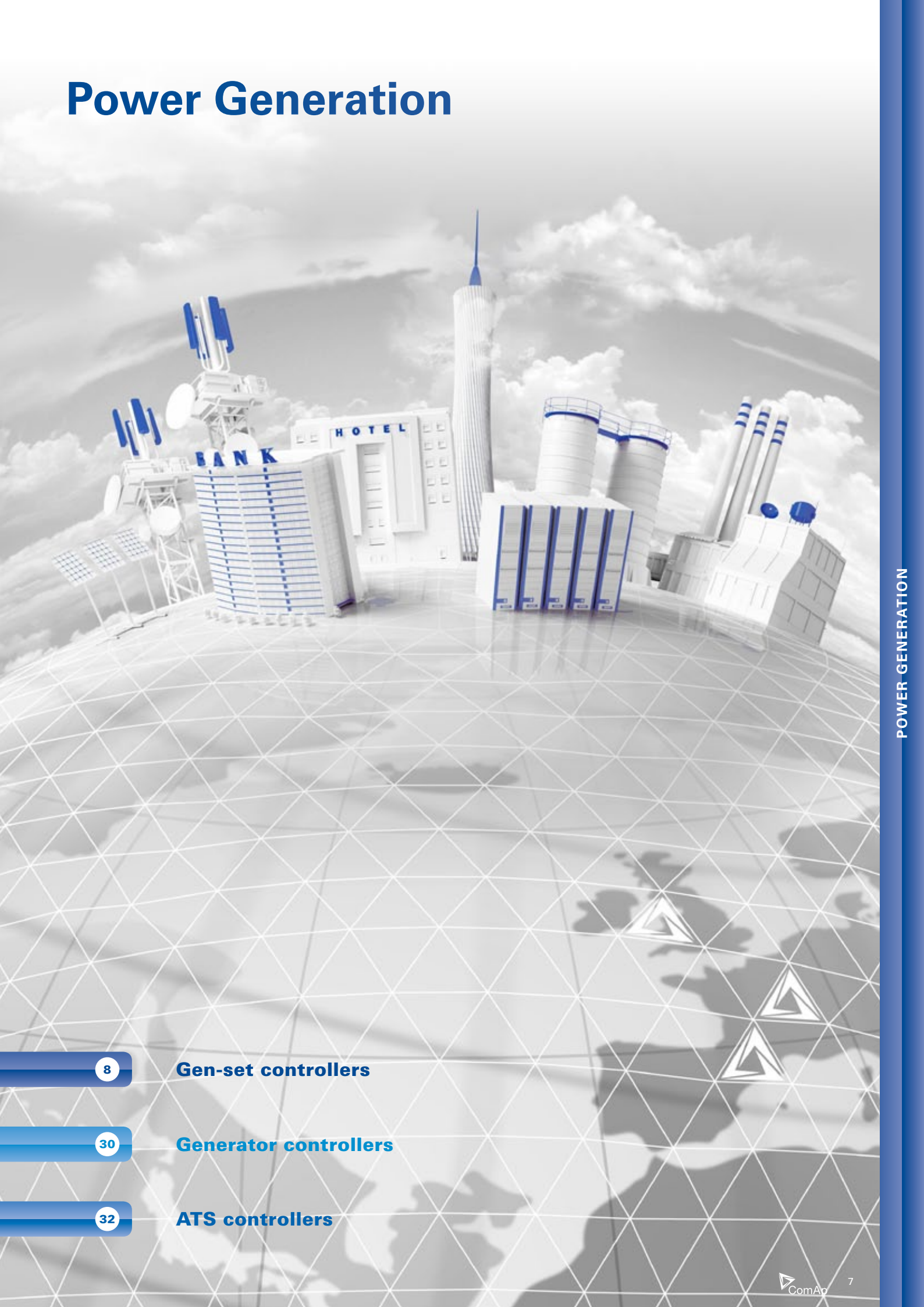
We hope you find the guide useful and continue to be an important part of our future. Hearing what you think is very important to us, so if you would like to share your experience of using our products please let us know by emailing your story to info@comap.cz.

Regards
Libor Mertl – Managing Director

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Power Generation



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Gen-set controllers

30

Generator controllers

32

ATS controllers

InteliNano^{NT} MRS, InteliNano^{NT} AMF

InteliNano^{NT} MRS, InteliNano^{NT} AMF

SUPERCOMPACT AMF OR MRS GEN-SET CONTROLLERS

The InteliNano^{NT} MRS and the InteliNano^{NT} AMF generating-set controllers deliver a cost-effective solution offering outstanding protection, monitoring and control for small-medium sized generator sets.

Different controller options are available depending upon application and requirements:

- InteliNano^{NT} AMF start controller for Auto Mains Failure functionality
- InteliNano^{NT} MRS for Manual and Remote Start control capability

This supercompact controller range boasts a large and powerful graphic display and is simple to configure and use. The symbol-number display conveniently means information is conveyed without the need for language translation.

Both InteliNano^{NT} MRS and InteliNano^{NT} AMF generating-set controllers communicate with license-free PC software via the integrated USB port. This software allows users simply configure all the inputs, outputs and important parameters – as well as update the controller's firmware to suit individual requirements.

InteliNano^{NT} controllers can communicate via standard and proprietary CAN J1939 communication protocols and are compatible with wide range of EFI engines that includes Caterpillar, Cummins, Detroit Diesel, Deutz, GM, Isuzu, Iveco, John Deere, MAN, MTU, Perkins, Scania, Volvo and many others.



Benefits

- Supercompact and attractive design
- Integrated solution – less wiring and external components
- Standard industrial cutout dimensions
- The biggest graphical display in its class
- Language free, on display only symbols and numbers, no translation needed
- USB communication interface and CAN for outstanding support of EFI engines
- “Zero” power consumption, i.e. extended battery life
- Weak battery genset starting
- Event Log (10 events)
- Easy and user-friendly installation / operation
- Perfect price / performance ratio
- USB one cord programming
- ComAp's uncompromised quality and performance
- AMF and MRS in one model¹⁾, i.e. one stock only
- High speed engine support
- Dedicated for diesel and gasoline engines
- Shorter commissioning time – USB one-cord power supply and programming
- All setpoints and I/O's configurable via front panel

Features

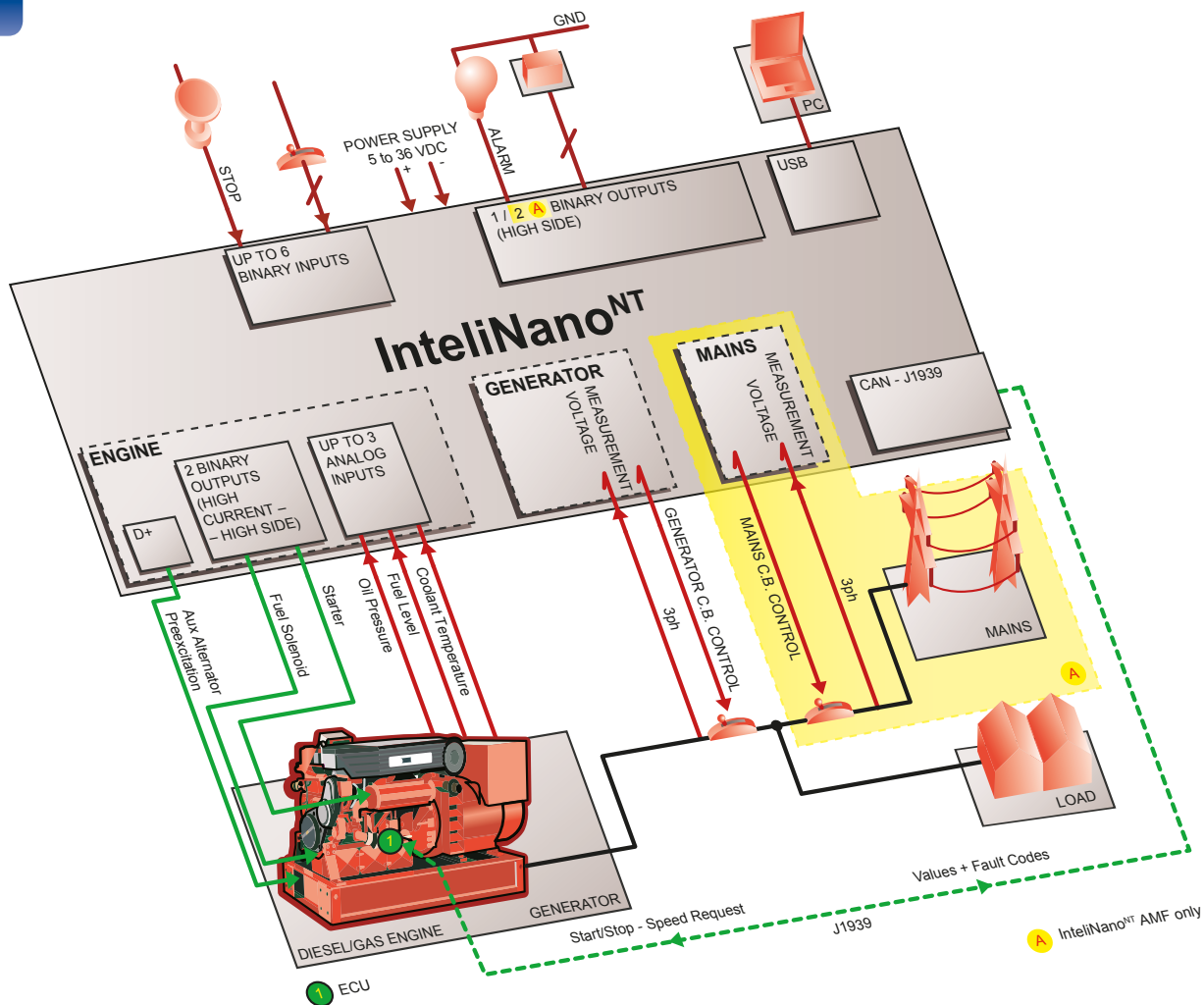
- 3 analog inputs (shared with binary inputs)
- COM terminal for analog measurement
- 6 binary inputs (1 binary input is shared with binary output)
- 2 high side – high current outputs
- 2/4¹⁾ high side binary outputs
- Automatic GCB / control manual
- CAN J1939
- USB
- Big graphical LCD
- D+ pre-excitation terminal
- “Zero” power consumption
- 3 phase mains measurement

TYPICAL APPLICATION:

Standby system

see page 81

1) Only for AMF model



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
- Battery over / under voltage protection
- Maintenance counter

Communication interfaces

- CAN
- USB on board

PC tools

- NanoEdit see web pages

EFI engine support

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

Slovenia

Stubelj



Stubelj is a Slovenian company with 25 years experience of producing and selling 2.0–2000 kVA generating sets, and providing all services connected with this business.

„Our company has been using ComAp controllers for many years. We have had a good long-term experience with IntelliLite^{NT} and IntelliGen^{NT} controllers. We are now using the new IntelliNano^{NT} controllers on our smaller generating sets, which we are very happy with.

The IntelliNano^{NT} gen-set controllers provide protection, monitoring and control to small-to-medium sized generator sets and pack plenty of power into a small unit at a very good price.”

Marko Stubelj
Purchasing Manager
www.stubelj.si

InteliNano^{NT} Plus

SUPREME MODEL FROM INTELINANO NT FAMILY. AMF AND MRS CONTROLLER WITH CURRENT MEASUREMENT AND SUPPORT OF EFI ENGINE.

The InteliNano^{NT} Plus generating-set controller delivers a cost effective solution offering outstanding protection, monitoring and control for small-medium sized generator sets.

This supercompact controller range boasts a large and powerful graphic display and is simple to configure and use. The symbol-number display conveniently means information is conveyed without the need for language translation.

The InteliNano^{NT} Plus brings additional functionality to the InteliNano^{NT} range, conveniently providing Manual and Remote Start capability (MRS) and Automatic Mains Failure capability (AMF) within the one controller, as well as offering a current measurement feature.

The controller can communicate with license-free PC software via the integrated USB port. This software allows users to simply configure all the inputs, outputs and important parameters – as well as update the controller's firmware to suit individual requirements.

The InteliNano^{NT} Plus can communicate via standard and proprietary CAN J1939 communication protocols and is compatible with a wide range of EFI engines that includes Caterpillar, Cummins, Detroit Diesel, Deutz, GM, Isuzu, Iveco, John Deere, MAN, MTU, Perkins, Scania, Volvo and many others.



InteliNano^{NT} Plus

TYPICAL APPLICATION:

Prime mover system

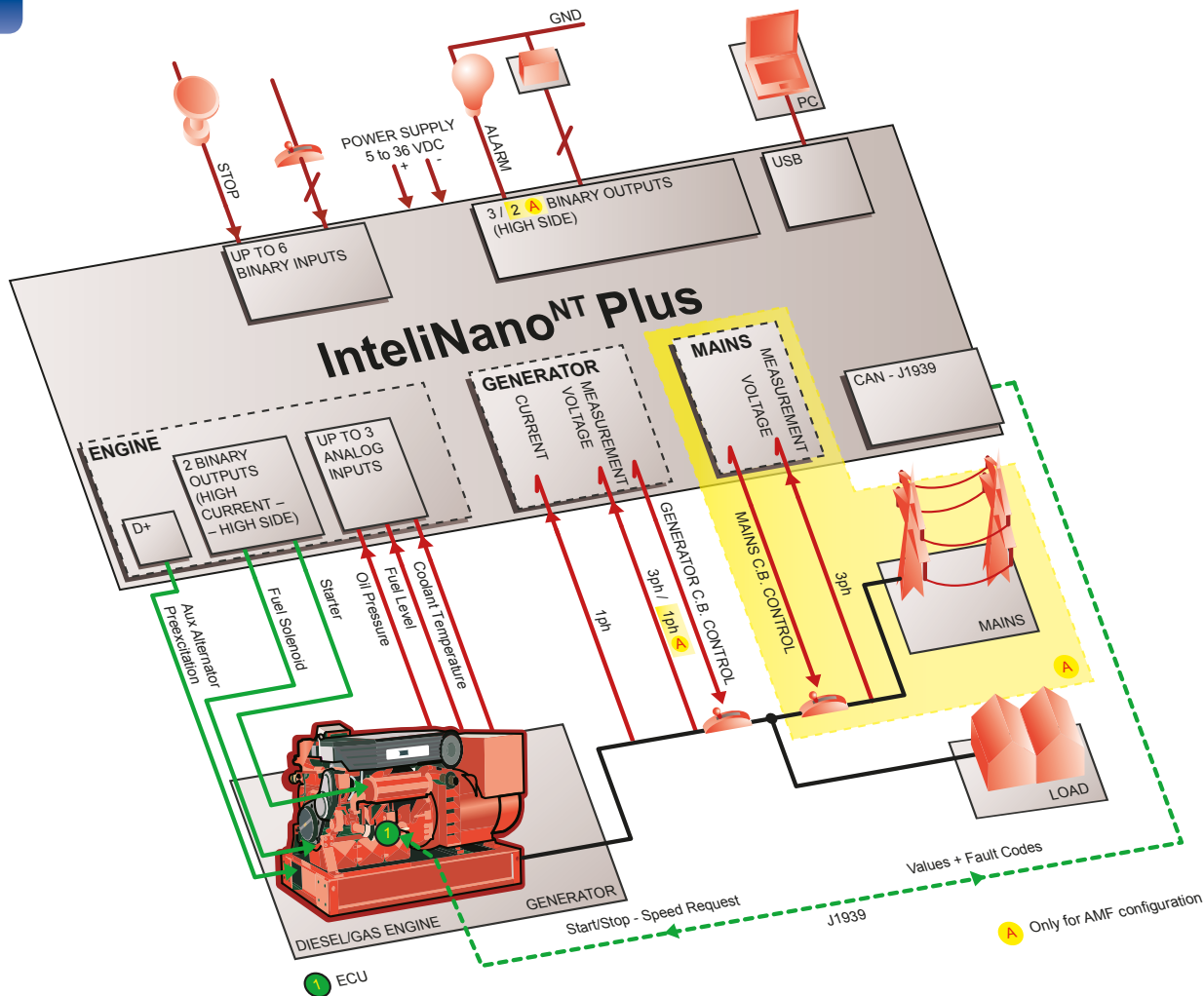
see page 80

Benefits

- Supercompact and attractive design
- Integrated solution – less wiring and external components
- Standard industrial cutout dimensions
- The biggest graphical display in its class
- Language free, on display only symbols and numbers, no translation needed
- USB communication interface and CAN for outstanding support of EFI engines
- “Zero” power consumption, i.e. extended battery life
- Weak battery genset starting
- Event Log (10 events)
- Easy and user-friendly installation / operation
- Perfect price / performance ratio
- USB one cord programming
- ComAp's uncompromised quality and performance
- AMF and MRS in one model, i.e. one stock only
- High speed engine support
- Dedicated for diesel and gasoline engines
- Shorter commissioning time – USB one-cord power supply and programming
- All setpoints and I/O's configurable via front panel

Features

- Current measurement
- 3 analog inputs (shared with binary inputs)
- COM terminal for analog measurement
- 6 binary inputs (1 binary input is shared with binary output)
- 2 high side – high current outputs
- 4 high side binary outputs
- MCB
- Automatic GCB / control manual
- CAN J1939
- USB
- Big graphical LCD
- D+ pre-excitation terminal
- “Zero” power consumption
- 3 phase mains measurement
- AMF and MRS in one model



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
 - Overcurrent
 - Battery over / under voltage protection
- Maintenance counter

Communication interfaces

- CAN
- USB on board

PC tools

- NanoEdit see web pages

EFI engine support

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

Lebanon

IntelliNano^{NT} – Small and powerful controller

"IntelliNano^{NT} is the latest controller introduced by ComAp – and the smallest! It is simple to install, easy to configure and low in price – all with the same ComAp features and performance you have come to expect. IntelliNano has been designed with different models suitable for different applications. There are models which have the ability to operate the genset in manual, automatic, and AMF mode. Save time, money and space with IntelliNano^{NT}!"

Antoine Jabbour
Managing Director
www.jabbourpower.com



InteliLite^{NT} MRS

SINGLE SET GEN-SET CONTROLLER

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 three standard MRS models are identified by a number, (10, 15 or 16) which defines model the model's capabilities. Detailed feature overviews of the InteliLite^{NT} MRS models are available at www.comap.cz.

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

A special low temperature version (InteliLite^{NT} MRS 16 LT) is also available, allowing the unit to work up to -40 °C.



InteliLite^{NT} MRS

TYPICAL APPLICATION:

**Prime mover system
– remote monitoring
via Internet**

see page 82

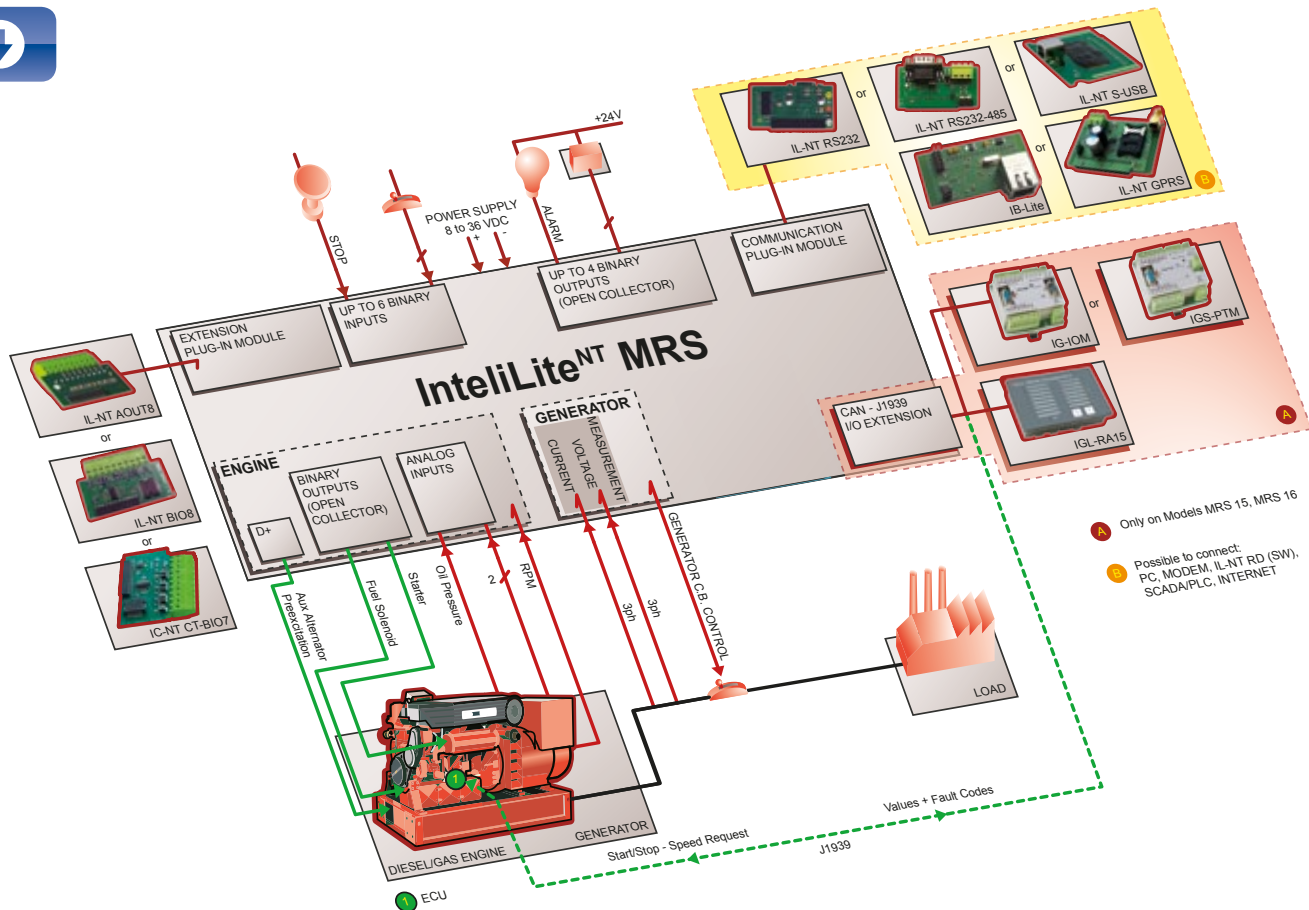
Benefits

- 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)¹
- Web based monitoring and control
- Wide range of remote communications
- Customer screen – fully customizable promotion initial screen
- Multilanguage support of user interface – Chinese, Dutch, English, French, German, Hebrew, Italian, Portuguese, Russian and Spain

Features

- Support of engines equipped with Electronic Control Unit – J1939 interface (15, 16)¹
- 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 128x64 pixels
- Parameters adjustable via keyboard or PC
- 3 phase generator protections
- Generator measurements (50/60 Hz): V, A (3 phase), Hz, kW, kVA, kWh
- Selectable protections alarm/shutdown
- Configurable analog inputs and outputs
- Battery voltage, engine speed (pickup) measurement
- Configurable programmable binary inputs and outputs
- Event based history file
- Warm-up and cooling functions
- Generator C.B. control (16)¹
- Power and temperature switching binary output
- Wide range of communication interfaces – GPRS, GSM/Analog modem, Ethernet, USB, RS232, RS485
- Modbus and SNMP
- Dimensions 180x120 mm (front panel)
- Sealed to IP65

¹) Stated feature available on this model



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 interfaces

- Optional RS232, RS485 (including Modem support) or USB plug-in interface
- Modbus RTU/TCP (requires RS485 interface/IB-Lite)
- SNMP (requires IB-Lite)
- Optional Internet/Ethernet via IB-Lite
- On-line control and monitoring over web pages (embedded web server) via IB-Lite

Communication modules and PC tools

- **IB-Lite** see page 62
- **IL-NT GPRS** see page 62
- **IL-NT RS232** see page 63
- **IL-NT RS232-485** see page 63
- **IL-NT S-USB** see page 63
- **WinScope** see page 72
- **LiteEdit** see page 72
- **WebSupervisor** see page 73
- **IntelliMonitor** see page 76

Extension modules and rem. displ.

- **IG-IOM** see page 63
- **IGL-RA15** see page 63
- **IC-NT CT-BIO7** see page 63
- **IL-NT AOUT8** see page 63
- **IL-NT BIO8** see page 63
- **IGS-PTM** see web pages
- **IL-NT RD (SW)** see web pages

EFI engine support

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

USA

Stand-by Power for Manufacturing Facility

"Our customer's site had more than 10 gensets of various makes and vintages spread out over as many buildings. As we were commissioning a new genset on their campus, we identified an opportunity to retrofit their existing fleet with IntelliLite^{NT}, giving them the ability to monitor all their sets remotely. The remote communications flexibility has allowed our service department to respond to our customer's needs in an instant and provide them with great service. This has saved our customer an incredible amount of time and money."

Larry Davis
Sales Manager
www.acfstandbysystems.com



InteliLite^{NT} AMF

SINGLE SET GEN-SET CONTROLLER

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). Detailed feature overviews of the InteliLite^{NT} AMF models are available at www.comap.cz.

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

A special low temperature version (InteliLite^{NT} AMF 25 LT) is also available, allowing the unit to work up to -40 °C.



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)¹
- Web based monitoring and control
- Wide range of remote communications
- Customer screen – fully customizable promotion initial screen
- Multilanguage support of user interface – Chinese, Dutch, English, French, German, Hebrew, Italian, Portuguese, Russian and Spain

Features

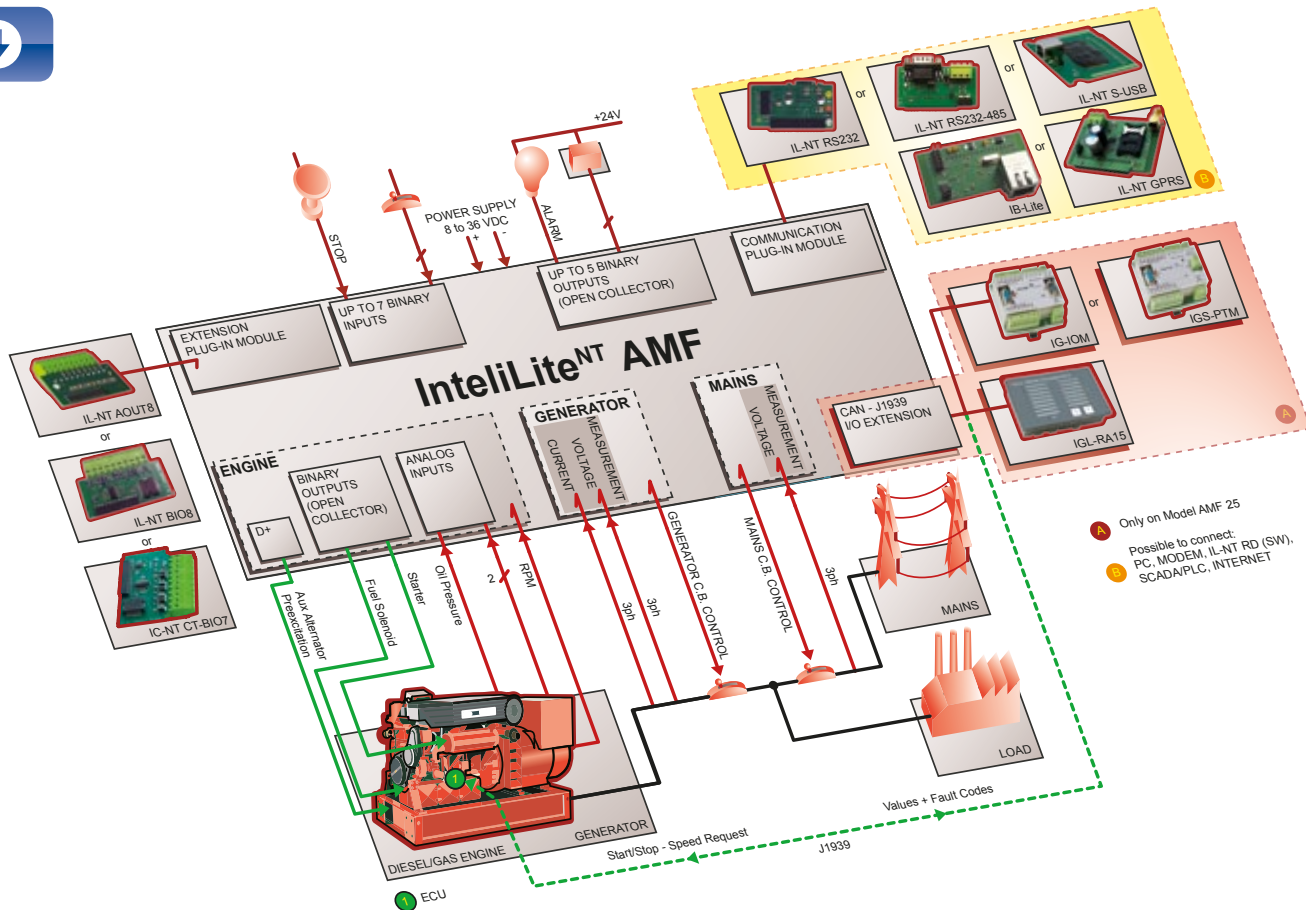
- Support of engines equipped with Electronic Control Unit J1939 interface (25)¹
- Comprehensive diagnostic messages; SPN/FMI codes; KWP2000 support
- Automatic or manual start/stop of the gen-set
- Push buttons and LEDs for simple control
- Graphic back-lit LCD display 128×64 pixels
- Parameters adjustable via keyboard or PC
- Mains measurements (50/60 Hz): V (3 phase), Hz
- Generator measurements (50/60 Hz): V, A (3 phase), Hz, kW, kVA, kWh
- Selectable protections alarm/shutdown
- Configurable analog inputs and outputs
- Battery voltage, engine speed (pickup) measurement
- Configurable programmable binary inputs and outputs
- Event based history file
- Warm-up and cooling functions
- Generator C.B. and Mains C.B. control with feedback and return timer
- Power and temperature switching binary output
- Wide range of communication interfaces – GPRS, GSM/Analog modem, Ethernet, USB, RS232, RS485
- Modbus and SNMP
- Dimensions 180×120 mm (front panel)
- Sealed to IP65

TYPICAL APPLICATION:

**Standby system
– remote monitoring
via Internet**

see page 83

¹) Stated feature available on this model



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 interfaces

- Optional RS232, RS485 (including Modem support) or USB plug-in interface
- Modbus RTU/TCP (requires RS485 interface/IB-Lite)
- SNMP (requires IB-Lite)
- Optional Internet/Ethernet via IB-Lite
- On-line control and monitoring over web pages (embedded web server) via IB-Lite

Communication modules and PC tools

- **IB-Lite** see page 62
- **IL-NT GPRS** see page 62
- **IL-NT RS232** see page 63
- **IL-NT RS232-485** see page 63
- **IL-NT S-USB** see page 63
- **LiteEdit** see page 72
- **WinScope** see page 72
- **WebSupervisor** see page 73
- **InteliMonitor** see page 76

Extension modules and rem. displ.

- **IG-IOM** see page 63
- **IGL-RA15** see page 63
- **IC-NT CT-BIO7** see page 63
- **IL-NT AOUT8** see page 63
- **IL-NT BIO8** see page 63
- **IGS-PTM** see web pages
- **IL-NT RD (SW)** see web pages

EFI engine support

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

Poland

Using ComAp power controllers is a huge advantage

EPS SYSTEM produces power generators in Poland, using mostly IVECO, VOLVO-PENTA, PERKINS and MTU engines. Besides the production of generators, company provides and integrates power supply systems, including installation.

"During 12 years of service, we have been handling various tasks in monitoring and control of power supply systems and generators. The technologies in this branch are continuously evolving which makes us resolve new and unusual requirements given by our clients. Using ComAp power controllers is a huge advantage not only for typical applications, but also in executing individual requests and demands. The vast majority of power generators we produce is equipped with an electronically controlled fuel injection combined with ComAp controllers and CAN interface. This simplifies production and maintenance and also helps with diagnostics."

Norbert Szymon Broniek
Sales Manager
www.epssystem.pl



InteliCompact^{NT} SPtM

SINGLE GEN-SET IN PARALLEL TO MAINS CONTROLLER

InteliCompact^{NT} SPtM controllers are 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, Detroit Diesel, Deutz, GM, Isuzu, Iveco, John Deere, MAN, MTU, Perkins, Scania, Sisu, VM Motori, 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.

The 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/GPRS modem or the Internet (including Web server) supporting our new AirGate technology and WebSupervisor for fleet management monitoring.

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



InteliCompact^{NT} SPtM

TYPICAL APPLICATION:

Standby system with soft return – remote monitoring and control via Internet

see page 84

Rental standby system with soft return

see page 85

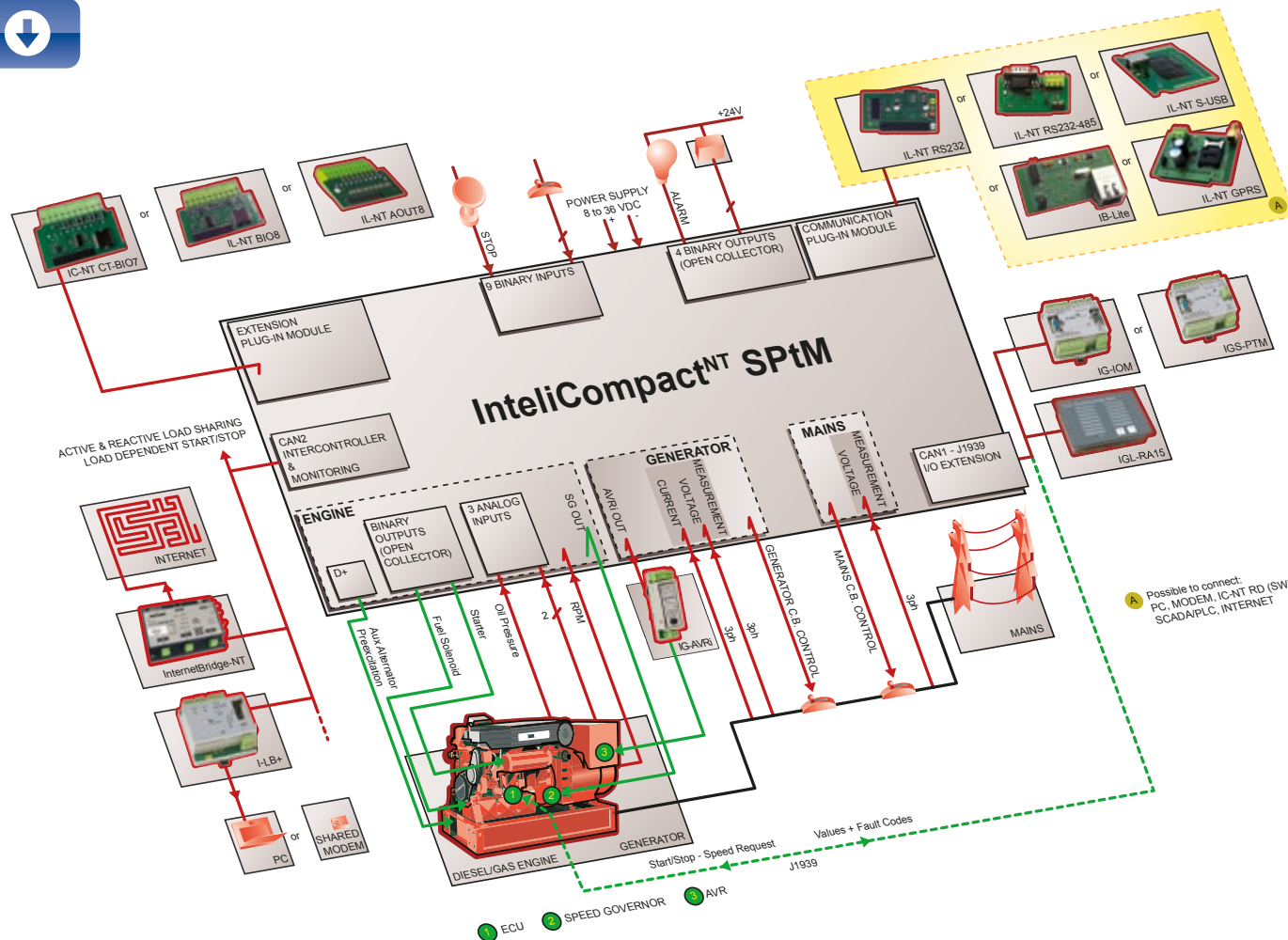
Benefits

- Simple paralleling (easy wiring, installation and configuration)
- Remote monitoring helps reduce call-out costs of service engineers
- Optional Internet with control and monitoring via LiteEdit, InteliMonitor or WebSupervisor (web-based)
- Support of wireless Internet
- DC analog gauge outputs – simple connection to standard panel meters
- Optional extension I/O modules
- Optional 1 mains phase current measurement
- Protections – Loss of excitation, Earth fault current protection and others
- Support of High Voltage and monophasic applications
- Direct communication with EFI engines
- History log – easy troubleshooting and warranty claim handling

Features

- Generator measurements: V, A, kW, kVAr (3 phase, true RMS), Hz
- Mains measurements: V, A¹⁾ (3 phase, true RMS), Hz
- Generator protections
- Engine protections
- Mains protections (A, Hz, Vector Shift)
- AMF function
- Peak shaving, peak lopping
- Energy counters
- High tariff avoidance
- Mains export/import
- Automatic synchronization and load control (via speed governor or ECU)
- Synchronization of MCB (reverse synchronization)
- AVR control (Volt and PF control)
- Wide range of communication interfaces – RS232, RS485, USB, GSM/Analog modem, GPRS, Ethernet
- Modbus
- Support of electronic controlled engines (J1939, Modbus) including diagnostic information in plain text.
- Event based history with capacity for nearby 200 records. Date, time and system snapshot (freeze frame) in each record.
- 2 languages, user modifiable

1) Module IC-NT CFBIO7 needed measuring on 1 phase



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 x 120 mm
- Sealed to IP65
- Operation temperature:
 - -20°C to +70°C standard version
 - -40°C to +70°C low temperature version

Extension modules and rem. displ.

- IGL-RA15 see page 65
- IGS-PTM see page 65
- IL-NT AOUT8 see page 65
- IC-NT CT-BIO7* see page 65
- IG-IOIOM see web pages
- IL-NT BIO8 see web pages
- IC-NT RD (SW) see web pages

Communication modules and PC tools

- IB-Lite see page 64
- IL-NT GPRS see page 64
- IL-NT RS232 see page 65
- IL-NT S-USB see page 65
- InternetBridge-NT see web pages
- I-LB+ see web pages
- IL-NT RS232-485 see web pages
- WinScope see page 72
- LiteEdit see page 72
- WebSupervisor see page 73
- IntelliMonitor see page 76

EFI engine support

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

* IC-NT CT-BIO7 is already included in the controller

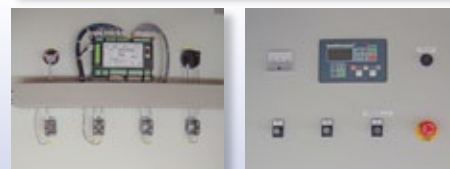
Italy

Elettrosystem

Elettrosystem Snc di Vittadello Sergio & C is an Italian company with 30 years experience of developing power control packages, and supplies control panels featuring ComAp controllers to a number of high profile manufacturers including Green Power Systems, one of Italy's top 5 gen-set manufacturers.

Mr. Vittadello Sergio, Managing Director of Elettrosystem explains the reason for selecting ComAp products:

"We use IntelliCompact^{NT} controllers for parallel control panels with gen-sets and/or with the mains. Because our customers are looking for simple and reliable equipment for gen-sets in continuous use or emergency applications, we've found the intuitive programming helps customers gain a quick understanding of operational features. The IntelliCompact^{NT} controller has proved to be very stable during operation and highly durable. It offers a well-designed interface and a menu of easy reference and understanding – perfect for those who want to create a parallel service without any unnecessary complications."



InteliCompact^{NT} MINT

MULTIPLE PARALLELING GEN-SETS WITH INTERNAL LOAD-SHARING CONTROLLER

InteliCompact^{NT} MINT controllers are 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, Detroit Diesel, Deutz, GM, Isuzu, Iveco, John Deere, MAN, MTU, Perkins, Scania, Sisu, VM Motori, 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.

The 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/GPRS modem or the Internet (including Web server) supporting our new AirGate technology and WebSupervisor for fleet management monitoring.

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

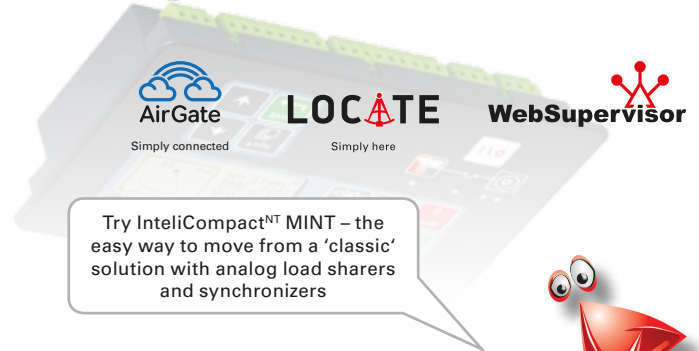
TYPICAL APPLICATION:

Multiple gen-sets in island

see page 86

Multiple gen-sets in parallel to grid – remote monitoring and control via Internet

see page 87



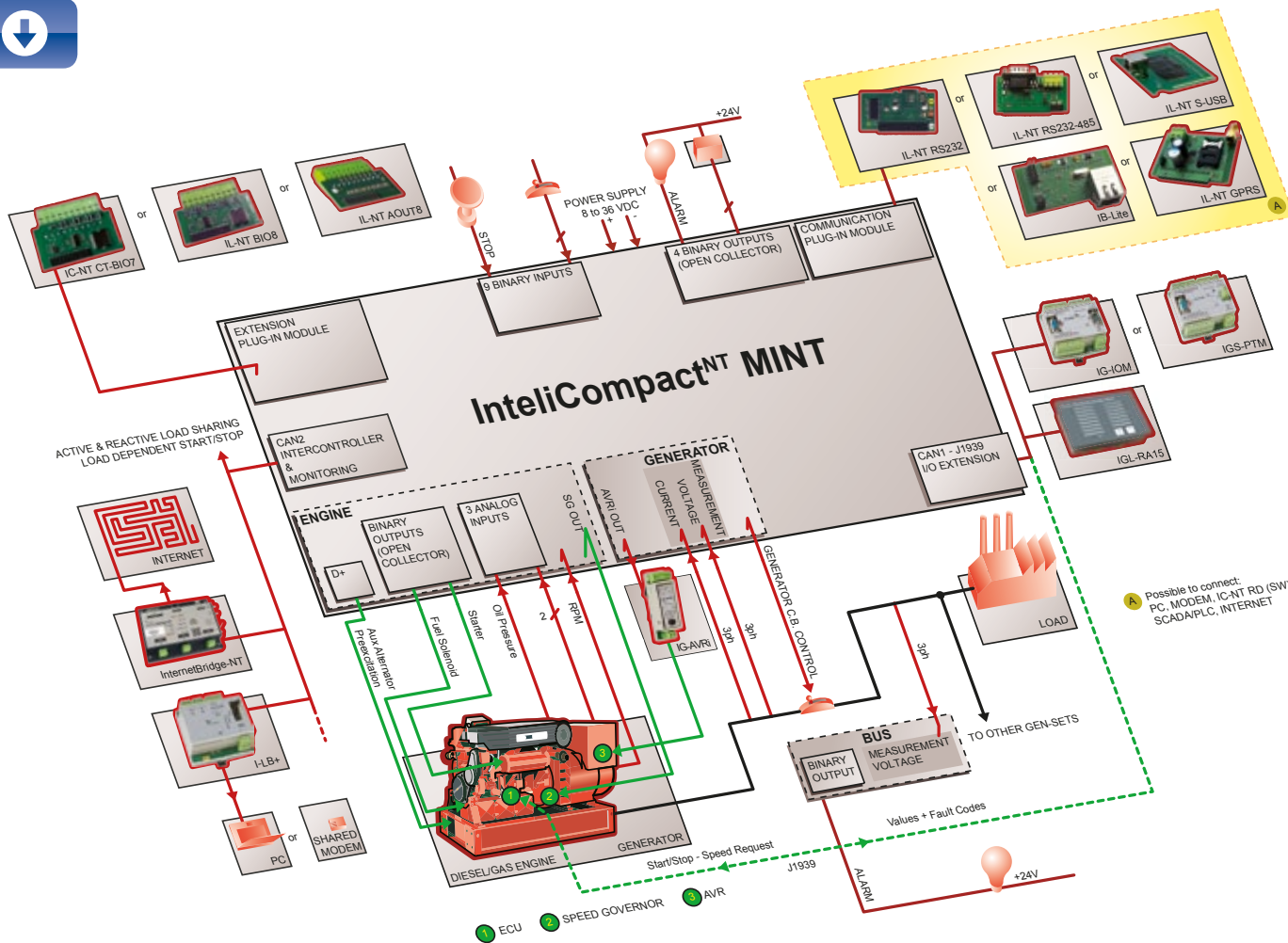
Benefits

- Simple paralleling (easy wiring, installation and configuration)
- Remote monitoring helps reduce call-out costs of service engineers
- Optional Internet with control and monitoring via LiteEdit, InteliMonitor or WebSupervisor (web-based)
- Support of wireless Internet
- DC analog gauge outputs – simple connection to standard panel meters
- Optional extension I/O modules
- Protections – Loss of excitation, Earth fault current protection and others
- Support of High Voltage and monophase applications
- Direct communication with EFI engines
- History log – easy troubleshooting and warranty claim handling

Features

- Generator measurements: V, A, kW, kVAr (3 phase, true RMS), Hz
- Bus measurements: V (3 phase, true RMS), Hz
- Generator protections (incl. Vector Shift)
- 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, GPRS, Ethernet
- Modbus
- Running Hours Equalization
- Support of electronic controlled engines (J1939, Modbus) including diagnostic information in plain text.
- Event based history with capacity for nearby 200 records. Date, time and system snapshot (freeze frame) in each record.
- 2 languages, user modifiable

InteliCompact^{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 x 120mm
- Sealed to IP65
- Operation temperature:
 - -20°C to +70°C standard version
 - -40°C to +70°C low temperature version

Extension modules and rem. displ.

- IGL-RA15 see page 65
- IGS-PTM see page 65
- IL-NT AOUT8 see page 65
- IC-NT CT-BIO7 see page 65
- IG-IOM see web pages
- IL-NT BIO8 see web pages
- IC-NT RD (SW) see web pages

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 64
- IL-NT GPRS see page 64
- IL-NT RS232 see page 65
- IL-NT S-USB see page 65
- InternetBridge-NT see web pages
- I-LB+ see web pages
- IL-NT RS232-485 see web pages
- WinScope see page 72
- LiteEdit see page 72
- WebSupervisor see page 73
- IntelliMonitor see page 76

Ecuador

Petroamazonas EP

Petroamazonas EP, the Ecuadorian state owned petroleum company, is currently operating a number of major oil wells deep within the Amazon forest and relies on Caterpillar gen-sets for the only means of power in these remote locations. In most situations, each oil well needs a load demand of 300 kW, with only one gen-set works at a time, performing a closed transition between gen-sets every seven days.

The company specifies Caterpillar powered gen-sets for most of their oil fields, and they select ComAp controllers such as IntelliCompact^{NT} because synchronism between gen-sets has proven to be very reliable and simple – a key purchasing criteria in product selection.

Another major advantage of using ComAp IntelliCompact^{NT} is the user friendly history log that collects key operating values and makes them accessible via LiteEdit software. Petroamazonas EP routinely use this function to download history activity from each of their operational gen-sets.



MainsCompact^{NT}

MAINS SUPERVISION CONTROLLER

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

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

The unit automatically starts a gen-set group and provides peak load shaving from the mains.



MainsCompact^{NT}

TYPICAL APPLICATION:

Multiple gen-sets in parallel to grid – remote monitoring and control via Internet

see page 87

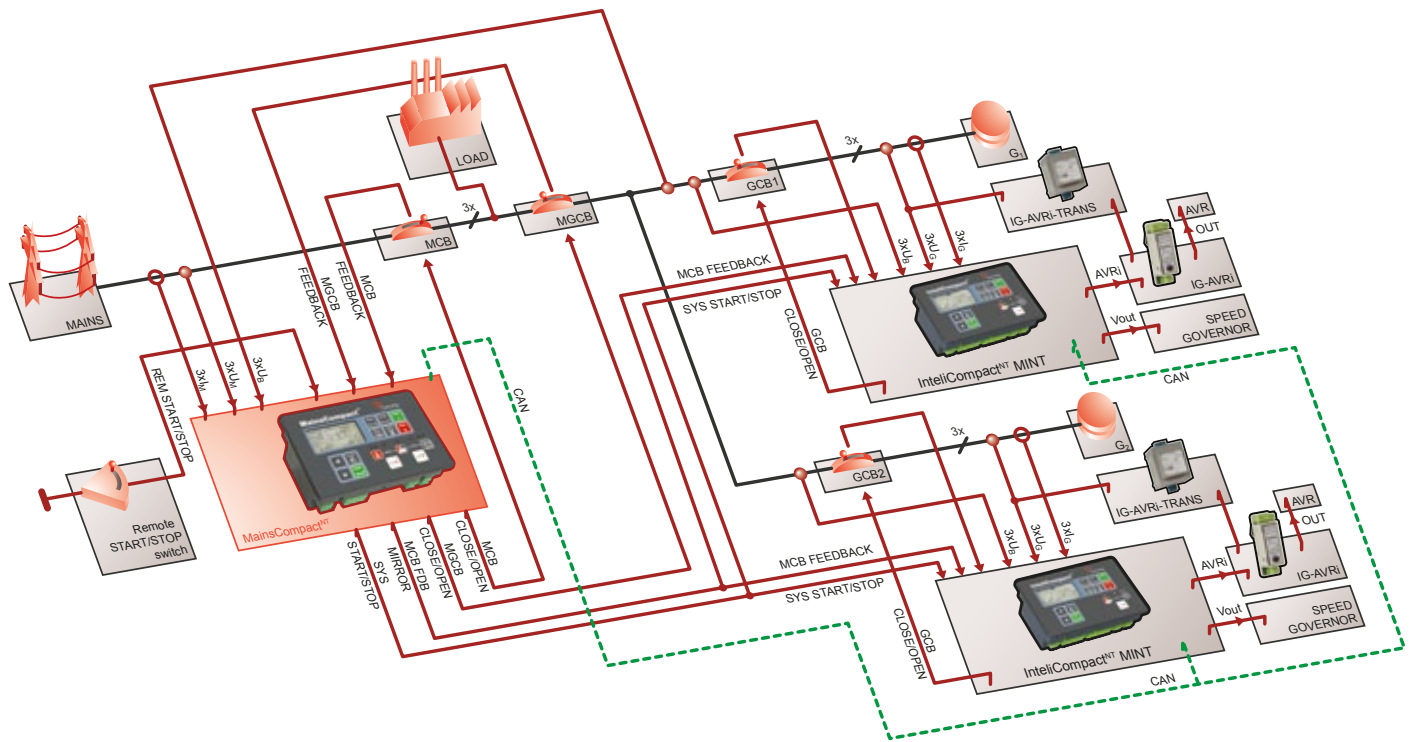
Benefits

- 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, kVAh
- 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)
 - Peak shaving, peak lopping
 - High tariff avoidance
 - Mains export limit
 - 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
- Wide range of communication interfaces – RS232, RS485, USB, GSM/Analog modem, GPRS¹⁾, Ethernet
- Modbus
- Event based history with capacity for nearby 200 records. Date, time and system snapshot (freeze frame) in each record.
- 2 languages, user modifiable
- Dimensions 180 x 120 mm
- IP65 front panel sealing

1) Available since MC-NT version 1.3



Extension modules

- IGL-RA15 see page 65
- IGS-PTM see page 65
- IL-NT AOUT8 see page 65
- IC-NT CT-BIO7 see page 65
- IG-IOM see web pages
- IL-NT BIO8 see web pages

Communication modules

- IB-Lite see page 64
- IL-NT GPRS see page 64
- IL-NT RS232 see page 65
- IL-NT S-USB see page 65
- I-LB+ see web pages
- IL-NT RS232-485 see web pages
- InternetBridge-NT see web pages

PC tools

- WinScope see page 72
- LiteEdit see page 72
- WebSupervisor see page 73
- InteliMonitor see page 76

Germany

Pro-Credit Bank Headquarters



When you're a respected German company with international operations power failures are not an option. However, when one of your business territories includes Sierra Leone and its imperfect mains infrastructure (averages 2-3 power failures daily) guaranteeing power from the grid becomes an impossible task. This is why Pro-Credit, a bank that believes access to financial services are one of the basic requirements for economic development, relies on two 60 kVA Deutz gen-sets controlled by 2 x InteliCompact^{NT} MINT controllers, working with the MainsCompact^{NT}, controller to provide reliable power to its headquarters.

During opening hours the gensets work non-stop in Island load Share mode, and then, when the bank is closed, the gen-sets function as an Auto Mains Failure (AMF) system. MainsCompact^{NT} and InteliCompact^{NT} MINT feature advanced mains protections, as well as a system flexibility that's easy to configure, monitor and control – whatever the challenges. We're pleased Pro-Credit Headquarters now has stable, secure power it (and its customers) can bank on. Bern Kappler, of Trading service and Planning, installed the system in Germany:

"This genset system provides the stability a large international bank needs. We run the gensets nonstop during opening hours because the power from the gensets is more stable and secure than the mains: The ComAp MainsCompact^{NT} and InteliCompact^{NT} MINT controllers provide the integrated reliability, ease-of-use and protections we need."

Bern Kappler, CEO, www.generator-de.de

InteliGen^{NT}

GENERAL PURPOSE HIGH-END GEN-SET CONTROLLER

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.

ComAp also has a marine version of the InteliGen^{NT} available for use in maritime applications. The InteliGen^{NT} Marine has the same features as the InteliGen^{NT}, but is approved for use in marine environments by DNV, GL, Lloyds Register and CRS classification and registration bodies.

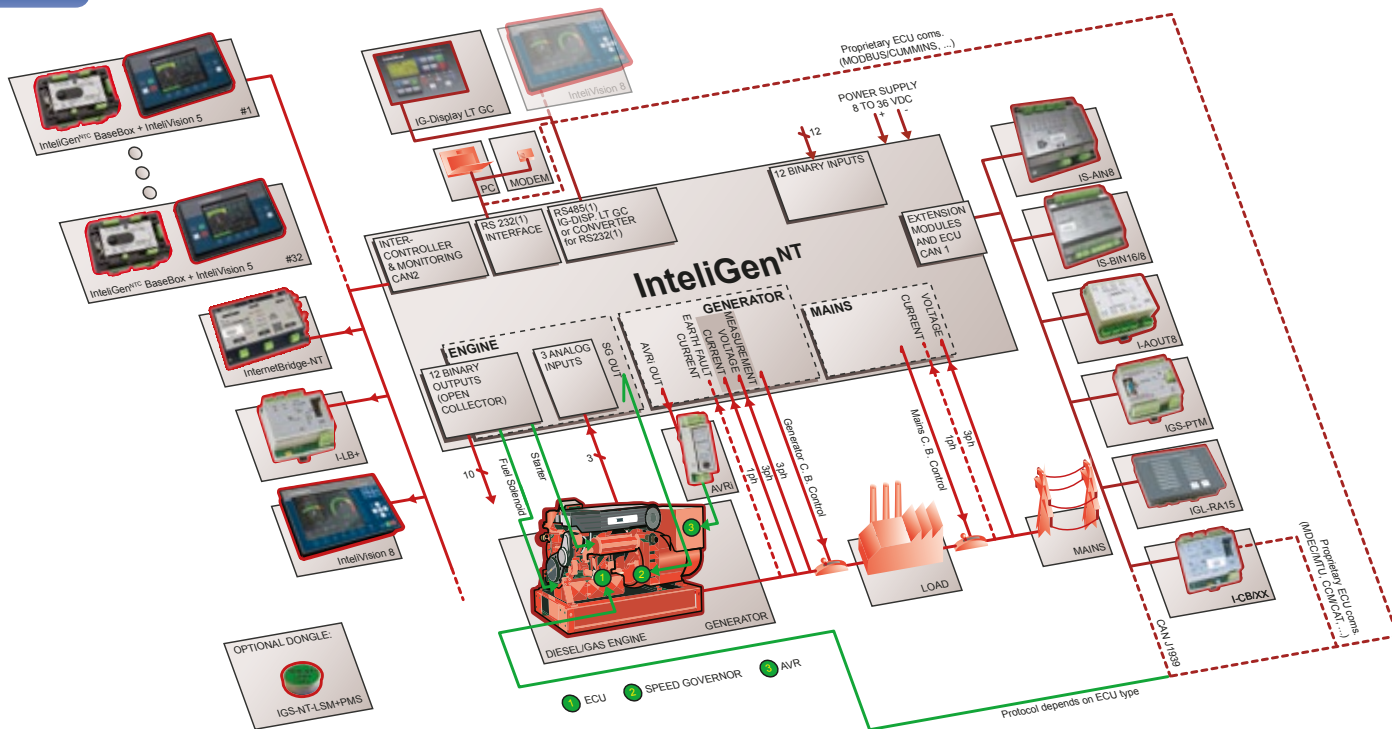


Benefits

- 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
- Built-in PLC functions

Features

- Support of engines with ECU (J1939, Modbus and other proprietary interfaces); alarm codes displayed in text form
- AMF function
- Automatic synchronizing and power control (via speed governor or ECU)
- Baseload, Import/Export
- Peak shaving
- Voltage and PF control (AVR)
- Generator measurement: U, I, Hz, kW, kVA, PF, kWh, kVAh
- Mains measurement: U, I, Hz, kW, kVA, PF
- 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 180x120 mm (front panel)
- Sealed to IP65



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

Comm. modules and PC tools

- **InternetBridge-NT** see page 66
- **I-LB+** see page 66
- **I-CR** see page 67
- **I-CB** see page 67
- **WebSupervisor** see page 73
- **WinScope** see page 72
- **GenConfig** see page 74
- **InteliMonitor** see page 76

Extension modules and rem. displ.

- up to 4x **I-AOUT8** see page 67
- up to 4x **IGL-RA15** see page 67
- up to 4x **IGS-PTM** see page 67
- up to 10x **IS-AIN8** see page 67
- up to 6x **IS-BIN16/8** see page 67
- up to 10x **IS-AIN8TC** see web pages
- up to 2x **InteliVision 5** see page 58
- up to 2x **InteliVision 5 RD** see page 58
- up to 5x **InteliVision 8** see page 60
- **InteliVision 17Touch** see page 61
- **IG-Display LT GC** see web pages

Upgrade kit

- **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

HW modification codes

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

LT = Low Temperature; display equipped with heating foil for operation down to -40°C

GC = Graphical Characters; one additional font (12x12, e.g. Chinese or Korean) can be used on the display

Marine = Type approved version for Marine

Peru

Minera Lincuna

Minera Lincuna is an isolated metal ore mining operation, near the top of the Sierra Negra Mountain (5000 m above sea level). Due to the remote location and resulting weak local electricity supply, the system features three gen-sets working in parallel with the mains incorporating three IntelliGenNTs, one InteliMainsNT and remote monitoring across the internet via WebSupervisor.



InteliGen^{NTC} BaseBox

GENERAL PURPOSE GEN-SET CONTROLLER WITH DETACHABLE COLOUR DISPLAY

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.



InteliGen^{NTC} BaseBox

TYPICAL APPLICATION:

Rental sets

see page 88

Standby system with load shedding – advanced displays

see page 90

Power station

see page 96

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 display¹⁾
- Active buttons – fast access to important data¹⁾
- Backlit buttons²⁾

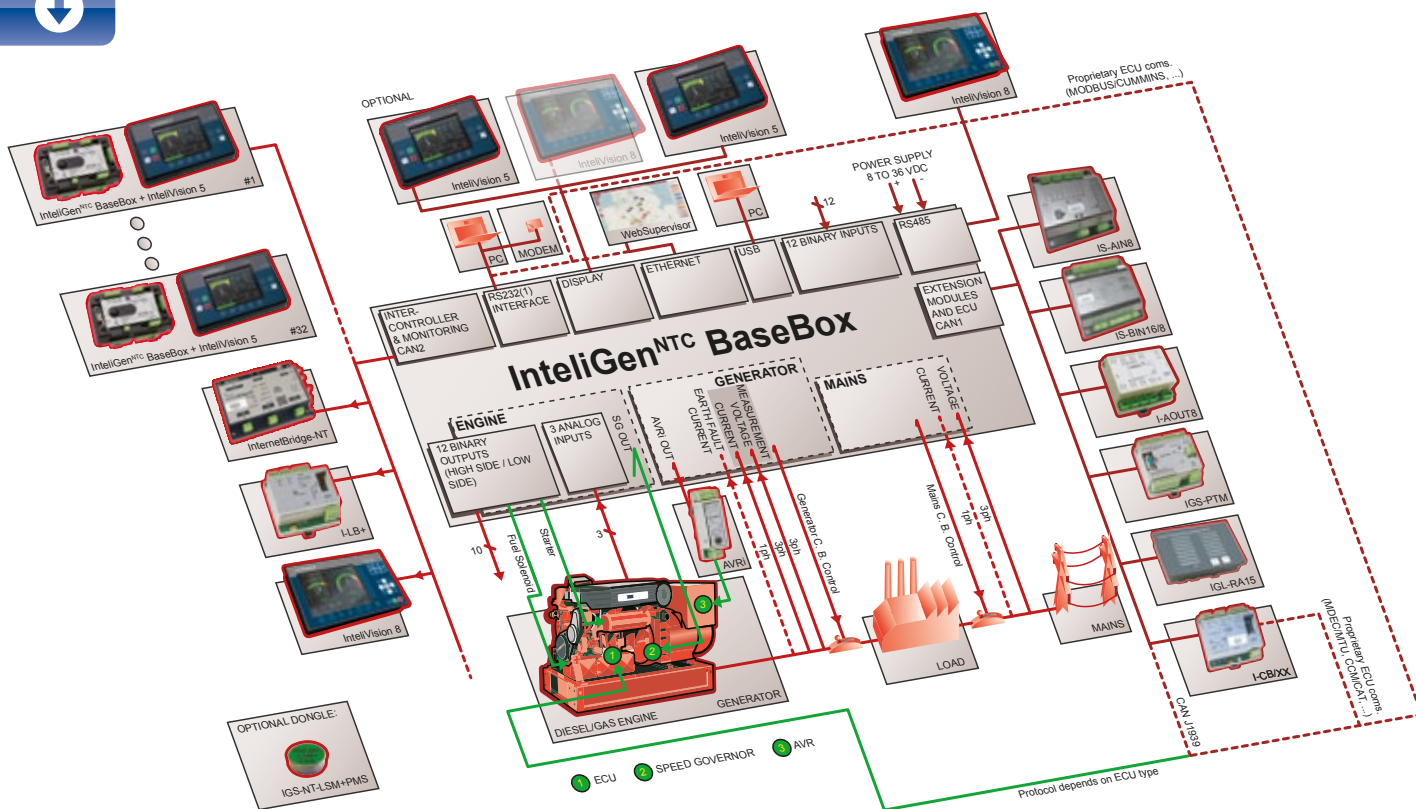
Features

- Support of engines with ECU (J1939, Modbus and other proprietary interfaces); alarm codes displayed in text form
- AMF function
- Automatic synchronizing and power control (via speed governor or ECU)
- Baseload, Import / Export
- Peak shaving
- Voltage and PF control (AVR)
- Generator measurement: U, I, Hz, kW, kVA, PF, kWh, kVAhr
- Mains measurement: U, I, Hz, kW, kVA, PF
- Selectable measurement ranges for AC voltages and currents – 120 / 277 V, 0–1 / 0–5 A³⁾
- 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 interface³⁾
- Ethernet connection (RJ45)³⁾
- USB 2.0 slave interface³⁾
- 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) It is concerned in connection with InteliVision 5

2) It is concerned in connection with InteliVision 5 RD

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



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

Comm. modules and PC tools

- **InternetBridge-NT** see page 66
- **I-LB+** see page 66
- **I-CB** see page 67
- **WinScope** see page 72
- **WebSupervisor** see page 73
- **GenConfig** see page 74
- **InteliMonitor** see page 76

Extension modules

- up to 4x **I-AOUT8** see page 67
- up to 2x **IGL-RA15** see page 67
- up to 4x **IGS-PTM** see page 67
- up to 10x **IS-AIN8** see page 67
- up to 6x **IS-BIN16/8** see page 67
- up to 10x **IS-AIN8TC** see web pages

Upgrade kit

- **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

Remote displays

- up to 2x **InteliVision 5** see page 58
- up to 2x **InteliVision 5 RD** see page 58
- up to 6x **InteliVision 8** see page 60
- **InteliVision 17Touch** see page 61

Singapore

F1 Singapore Grand Prix



The race was illuminated by twenty-four individual 500 kVA GENPOWER generators, powering 1500 special lighting rigs. To control all this power GENPOWER with their event experienced team carefully considered all available systems on the market and chose ComAp's IntelliGen^{NTC} BaseBox and IntelliVision 8 combination. An event of this magnitude doesn't just need lighting. Beyond the track 12 further 50 kVA, IntelliLite^{NT} AMF25 controlled GENPOWER generators were used to supply monitoring system along the track while the 500 kVA generators were not running during the day-time.

As **Mr. Celim**, the Managing Director at GENPOWER Generators explained the importance of reliability:

"When the world's spotlight is on us we need to be certain the lights stayed on! ComAp provides a complete and reliable service so that we're always in control of the power being generated. The reliability of the paralleling capability and the overall controller flexibility, including the ability to customize screen information are invaluable tools in the successful delivery of key infrastructure for one of the most logistically challenging events in the world of sport."

InteliSys^{NTC} BaseBox

PREMIUM AND COGENERATION GEN-SET CONTROLLER WITH DETACHABLE COLOUR DISPLAY



However complex the installation, InteliSys^{NTC} BaseBox is the flexible and powerful solution you are looking for.

InteliSys^{NTC} BaseBox 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.

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. Native cooperation of up to 32 gen-sets is a standard feature.

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

New ethernet connections together with AirGate make remote internet connection to new InteliSys^{NTC} BaseBox easy. After registration of InteliSys^{NTC} BaseBox on our website you can simply monitor the site on the internet using WebSupervisor.

InteliSys^{NTC} BaseBox can be connected with InteliVision 8 and/or other ComAp displays.



InteliSys^{NTC} BaseBox

TYPICAL APPLICATION:

More loads – multiple grids

see page 91

Combined heat and power (CHP) – cogeneration

see page 94

Power station

see page 96

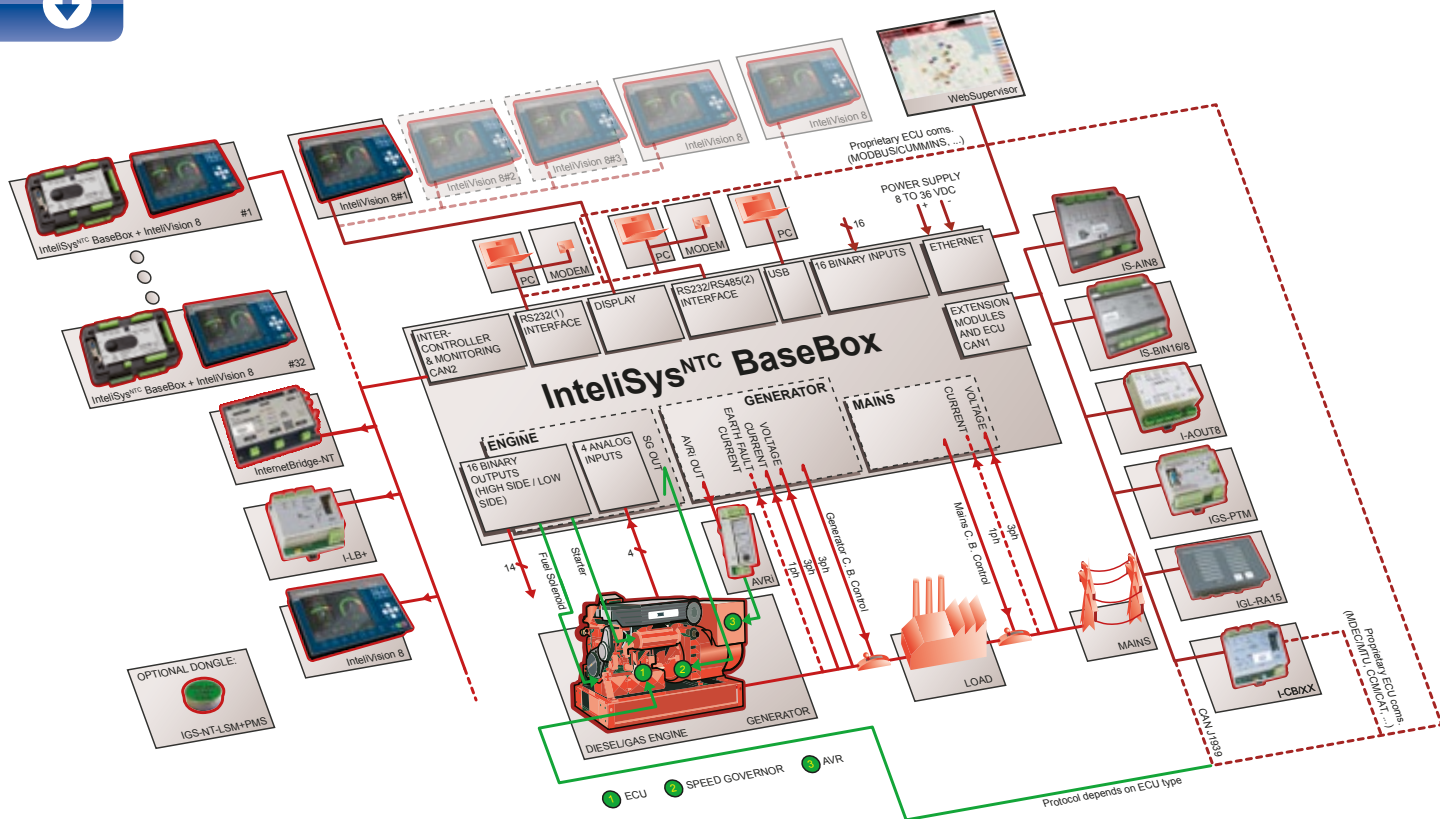
Benefits

- 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
- 8" colour TFT display¹⁾
- Active buttons – fast access to important data¹⁾
- Trends¹⁾
- Plug and play system¹⁾

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, kVA, PF, kWh, kVAh
- Mains measurement: U, I, Hz, kW, kVA, PF
- Selectable measurement ranges for AC voltages and currents – 120 / 277 V, 0–1 / 0–5 A
- Inputs and outputs configurable for various customer needs
- 1x RS232 / 2x 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 4000 records) with customer-selectable list of stored values; RTC; statistic values
- Integrated PLC programmable functions
- Interface to remote display units (InteliVision 8, InteliVision 5 RD)
- USB 2.0 slave interface
- Ethernet connection (RJ45)
- Bipolar binary output – possibility to use BO as High or Low side switch
- Pre mortem history (50 records)

¹⁾ It is concerned in connection with InteliVision 8



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

Comm. modules and PC tools

- **InternetBridge-NT** see page 66
- **I-LB+** see page 66
- **I-CB** see page 67
- **I-CR** see page 67
- **WinScope** see page 72
- **WebSupervisor** see page 73
- **GenConfig** see page 74
- **InteliMonitor** see page 76

Extension modules

- up to 4x **I-AOUT8** see page 67
- up to 2x **IGL-RB15** see page 67
- up to 4x **IGS-PTM** see page 67
- up to 10x **IS-AIN8** see page 67
- up to 6x **IS-BIN16/8** see page 67
- up to 10x **IS-AIN8TC** see web pages

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

Remote displays

- up to 3x **InteliVision 5** see page 58
- up to 3x **InteliVision 5 RD** see page 58
- up to 6x **InteliVision 8** see page 60
- **InteliVision 17Touch** see page 61
- up to 3x **IS-Display** see web pages

United Kingdom

Shirebrook site

Alkane Energy is a clean tech 'Gas to Power' energy company that uses methane to generate electricity in more than 20 operational sites located across the UK, running power plant ranging between 0,5 MW and 10 MW.



Alkane's model uses standard scalable plant with modular containerised engine units, which are managed by mobile maintenance engineers using web based remote monitoring of engine performance data to maximise operating effectiveness across the engine fleet.

A key component towards making this achievable has been the adoption and upgrade to the latest web based engine monitoring and control systems, often replacing aging control systems with ComAp's IntelSysNTC BaseBox and InteliVision 8.

Alkane also made full use of the latest pc software, ScreenEditor, to fully personalise the screen content. By using the simple toolbox maintenance engineers were able to alter factory default settings by changing screen content, background images, selecting colours and choosing engine data graphics.



InteliMains^{NTC} BaseBox

MAINS SUPERVISION CONTROLLER BASE UNIT FOR USE WITH DETACHABLE COLOUR DISPLAY

InteliMains^{NTC} BaseBox is designed for multiple (up to 31) gen-sets operating in parallel to Mains. The 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 or as a feeder controller.

InteliMains^{NTC} BaseBox provides 4 applications for different site topology selectable by software:

- with MCB (Mains Circuit Breaker)
- with MCB and MGCB (Master Generator Circuit Breaker)
- with BTB (Bus-tie Breaker)
- with LCB (Local Circuit Breaker)

According to the type of application, it controls MCB, MCB and MGCB, BTB or LCB 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 reverse and 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.

The addition of a new large colour display brings easy to read and improved presentation of critical information.

Comm. modules and PC tools

- **InternetBridge-NT** see page 66
- **I-LB+** see page 66
- **I-CR** see page 67
- **WebSupervisor** see page 73
- **GenConfig** see page 74
- **InteliMonitor** see page 76

Extension modules and rem. displ.

- **IGS-PTM** see page 67
- **I-AOUT8** see page 67
- **IS-BIN16/8** see page 67
- **IS-AIN8** see page 67
- **InteliVision 5** see page 58
- **InteliVision 8** see page 60
- **InteliVision 17Touch** see page 61

TYPICAL APPLICATION:

Power station

see page 96



Benefits

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

Features

- Integrated PLC programmable functions (same size as InteliSys^{NTC} BaseBox)
- 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
- Controller redundancy
- 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 1000 records) with customer-selectable list of stored values; RTC; statistic values
- Interface to remote colour display unit InteliVision 5 or InteliVision 8
- DIN-Rail mount
- Bipolar binary outputs – possibility to use BO as High or Low side switch
- Secondary isolated RS485 interface
- Ethernet connection (RJ45)
- USB 2.0 slave interface

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 & ROCOF protection
- All binary inputs free configurable for various protection types:
 - Yellow level: Warning (i.e. Alarm and Write to history), Alarm only, Write History Only, Notification only (called Alarm Indication), Notification and write history (called Alarm + History Indication)
 - Red level: Mains Protect with AutoReset, Mains Protect with Fault Reset required
- Phase rotation and phase sequence supervision
- Application security

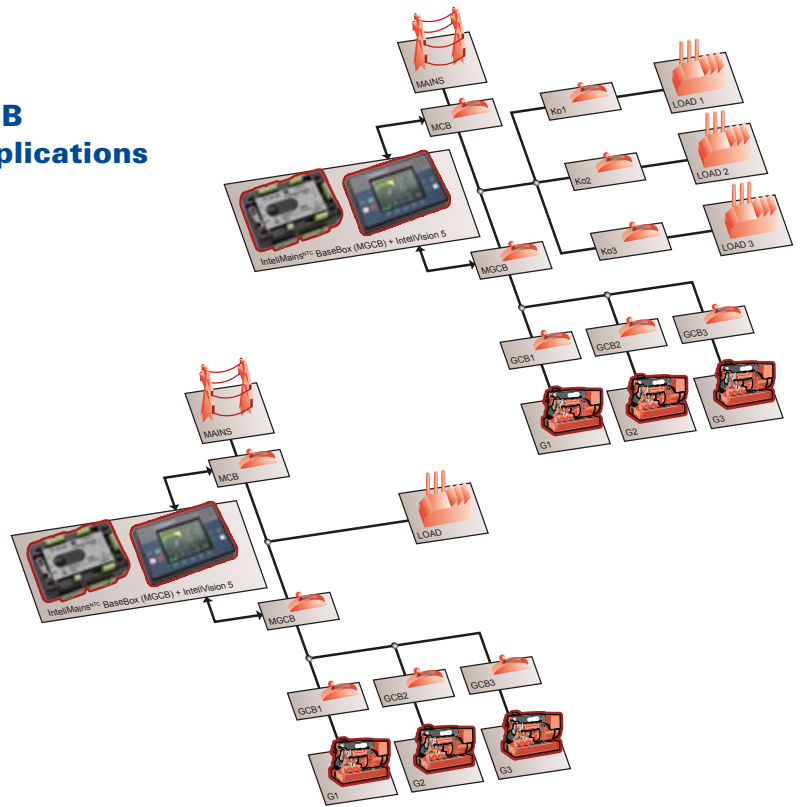
InteliMains^{NTC} BaseBox



MCB (Mains Circuit Breaker) and MGCB (Master Generator Circuit Breaker) applications

Features

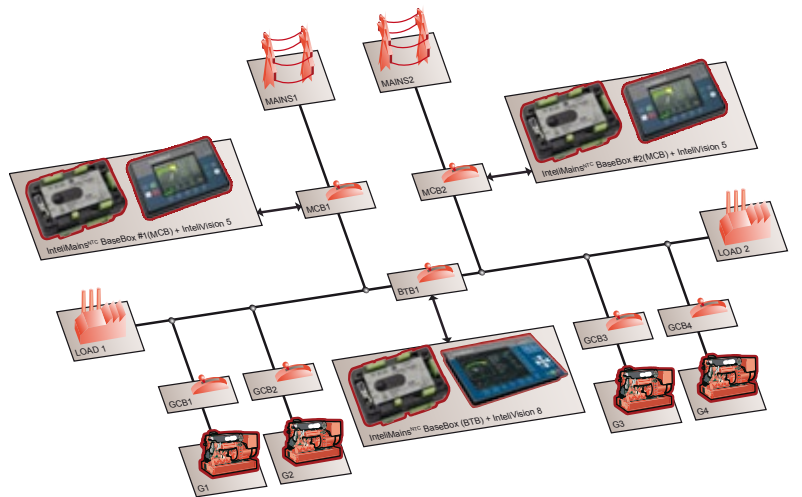
- AMF function based on mains failure, outputs a signal to start the gen-set group
- Many SPTM-equivalent mains parallel modes (SysBaseload, Analog Extern SysBaseload, Import/Export, Analog Extern Import/Export, Temp By Power)
- Peak shaving
- Test mode (Test on load for the complete gen-set group)
- Two application layouts – MCB only or MCB+MGCB control (see schematics)
- Mains measurement: U, I, Hz, kW, 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



BTB (Bus-tie Breaker) application

Features

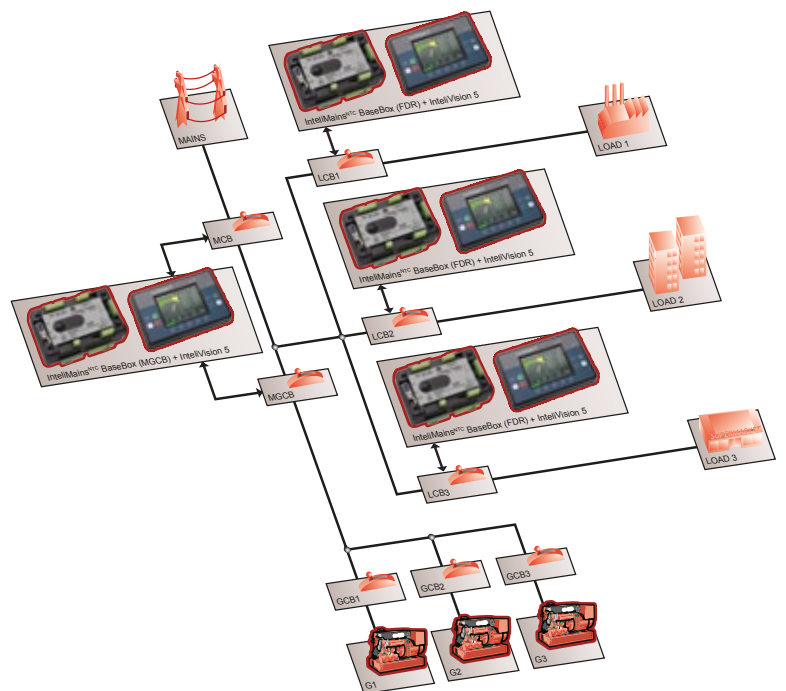
- Bus Left measurement: U, I, Hz, kW, kVA, PF, kWh exp., kWh imp., kVAhr exp., kVAhr imp.
- Bus Right measurement: U, Hz
- Manual or automatic selection of the gen-set group (side) to be influenced during synchronizing
- Selectable partial or full BTB control



FDR (Feeder) application

Features

- Manual or automatic connection of the load to the bus bar
- Load prioritization
- Load shedding on each feeder
- LCB (Local Circuit Breaker) closing supervision
- Possibility to monitor remotely status of each feeder (connection to other IntelMains^{NTC} BaseBox and gen-set controllers on site)



InteliGen^{NT} GeCon, InteliSys^{NT} GeCon

GENERATOR CONTROLLERS FOR LAND-BASED AND MARINE APPLICATIONS

GeCon controllers provide comprehensive generator protection and control for single or multiple gen-sets based on field proven InteliGen^{NT} and InteliSys^{NT} platforms.

With GeCon software installed the primary function of the controller is to manage and protect the generator in preference to the engine, which is not a direct concern, and as such, can be used in applications where engine management or protection is not required or in cases where the generator is powered by another source such as a turbine controlled by an external PLC.

Two versions of the GeCon software are available (land-based or marine applications) allowing customers to select a tailored solution for their application. There is also the option to modify certain parameters for critical applications.

A built-in synchronizer and digital isochronous load sharer allows for a total integrated solution for gen-sets in standby, island parallel or mains parallel. The GeCon allows parallel operation of up to 32 gen-sets in one group with power management and load sharing.

For critical applications, it is possible to arrange the controllers so a 'hot-standby' controller takes over the generator protection and control in case of failure of the main controller.

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

GeCon software can be installed on the following controllers:

- InteliGen^{NT}
- InteliGen^{NT} Marine
- InteliGen^{NT} BaseBox
- InteliGen^{NTC} BaseBox
- InteliSys^{NT} BaseBox
- InteliSys^{NT} BaseBox Marine
- InteliSys^{NTC} BaseBox

TYPICAL APPLICATION:

Land-based application

see page 100

Ship power management system

see page 102



Land-based applications



Marine applications

Benefits

- Excellent configurability enables users to customise to the needs of their application
- Option to read information from ECU (via CAN bus only)
- Power management over various engines from different producers
- Configurable protections
- Optional set the frequency by step 0,1 Hz
- Choice of communication options ensures easy remote supervising and servicing
- Optional redundant 'hot standby' controller guarantees uninterrupted generator control in case of failure of the primary controller
- Built-in PLC functions remove the need for an external PLC
- Perfect price/performance ratio
- Gen-set performance log for easy problem tracing
- Blackout start of engines¹⁾
- Running of SPI and SPTM applications without dongle²⁾



Generator monitoring and control

- Independent engine controller (e.g. IntelliDrive DCU) is required
- Generator measurement: U, I, Hz, kW, kVAr, kVA, PF, kWh, kVAh
- Bus/Mains measurement: U, I, Hz, kW, kVAr, kVA, PF
- Manual, Semi-auto¹⁾, Auto and Test operational modes
- Automatic Load sharing and Power management in MINT applications³⁾
- Automatic synchronizing and Voltage control in Auto mode
- Automatic synchronizing and Voltage control in Semi-auto mode¹⁾
- Power management: kW, kVA or % load based – in Auto mode
- Baseload, Import/Export⁴⁾, Peak shaving⁴⁾
- All binary/analog inputs are configurable for various protection types

Key:

- ¹⁾ for Marine version only
- ²⁾ for sw version 3.0 and higher
- ³⁾ with LSM+PMS dongle only
- ⁴⁾ for Land-based version only

Communication and PC tools

- RS232/RS485 interface with Modbus support
- Analog/GSM/ISDN/CDMA modem support
- Ethernet/Internet interface via **I-LB+/InternetBridge-NT** module or directly on IntelliGen^{NTC} BaseBox or IntelliSys^{NTC} BaseBox controller
- **WinScope** see page 72
- **GenConfig** see page 74
- **IntelliMonitor** see page 76

Extension modules and rem. displ.

- up to 4x **I-AOUT8** see web pages
- up to 4x **IGL-RA15** see web pages
- up to 4x **IGS-PTM** see web pages
- up to 10x **IS-AIN8** see web pages
- up to 6x **IS-BIN16/8** see web pages
- **various remote display units** see web pages

Generator protections

- 3 phase generator over/under voltage
- 3 phase generator over/under frequency
- Generator overload, Short current and IDMT overcurrent
- Voltage and current unbalance⁴⁾, Bus voltage unbalance⁴⁾, Reverse power⁴⁾, Earth fault current protection⁴⁾, ROCOF⁴⁾
- Additional 160 user configurable generator and bus/mains protections

Upgrade kits

- **IGS-NT-LSM+PMS** dongle or **IGS-NT-GECON-LSM+PMS** dongle for sw version IGS-NT-GeCon-Marine 3.0 and higher or IGS-NT-GeCon-LandBased 3.0 and higher
 - Load Sharing and Power Management for MINT and Combi applications
- **IGS-NT-GECON-LSM+PMS** dongle for sw version IGS-NT-GeCon 2.1 and lower
 - Load Sharing and Power Management for MINT and Combi applications
- **IGS-NT-GECON-PCM** dongle for sw version IGS-NT-GeCon 2.1 and lower
 - Enables GeCon sw to run on the controller single parallel with mains in SPI, SPtM and PROT¹⁾ applications

Order instructions

To run the GeCon software you need to order one of the standard IntelliGen or IntelliSys controllers listed below, and then install the GeCon software which is available on the ComAp website. It is important to install the correct software for the type of installation you have – either land-based or marine.

Controller	Order code
IntelliGen ^{NT}	IG-NT GC
IntelliGen ^{NT} BaseBox	IG-NT-BB
IntelliGen ^{NTC} BaseBox	IG-NTC-BB
IntelliSys ^{NT} BaseBox	IS-NT-BB
IntelliSys ^{NTC} BaseBox	IS-NTC-BB
IntelliGen ^{NT} Marine	IG-NT MARINE
IntelliSys ^{NT} BaseBox Marine	IS-NT MARINE

Poland

Reedbuck

The US Anchor Handling Tug Supply (AHTS) vessel, build in Gdansk, Poland by Northern Shipyard (Stocznia Północna SA), member of REMONTOWA Group, is equipped with ComAp PMS systems and independent generator protection units.

The AHTS vessel is equipped with total of 4 generators, 2 of them Shaft generators running in parallel and Load sharing. All the generators are controlled by ComAp IntelliSys^{NT} BaseBox GeCon units, providing the generator protections in case of diesel generators, and synchronizing, load control and load sharing in case of shaft generators.

The generators are linked together via bus tie, controlled by ComAp IntelliMains^{NT} Marine control unit.



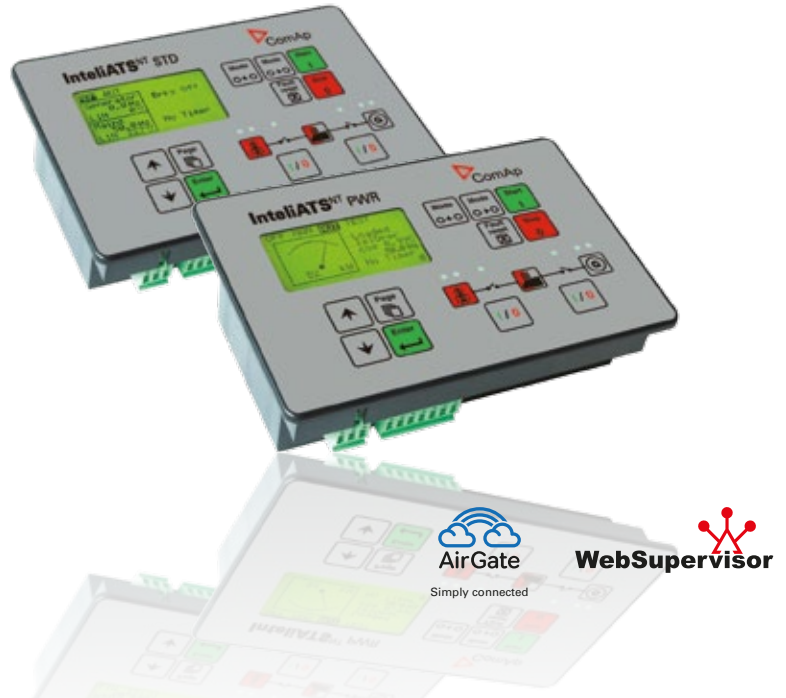
InteliATS^{NT}

AUTO TRANSFER SWITCH CONTROLLER

The 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
- Open delayed transition
- Open in phase transition (passive synchronization)
- Closed transition (short time parallel, passive synchronization)
- 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 controller buttons or PC, buttons with mechanical feedback
- Inputs and outputs: 4 binary inputs, 4 binary outputs
- Backup battery: ATS function works with backup battery or in reduced mode without backup battery

▷ InteliATS^{NT} PWR

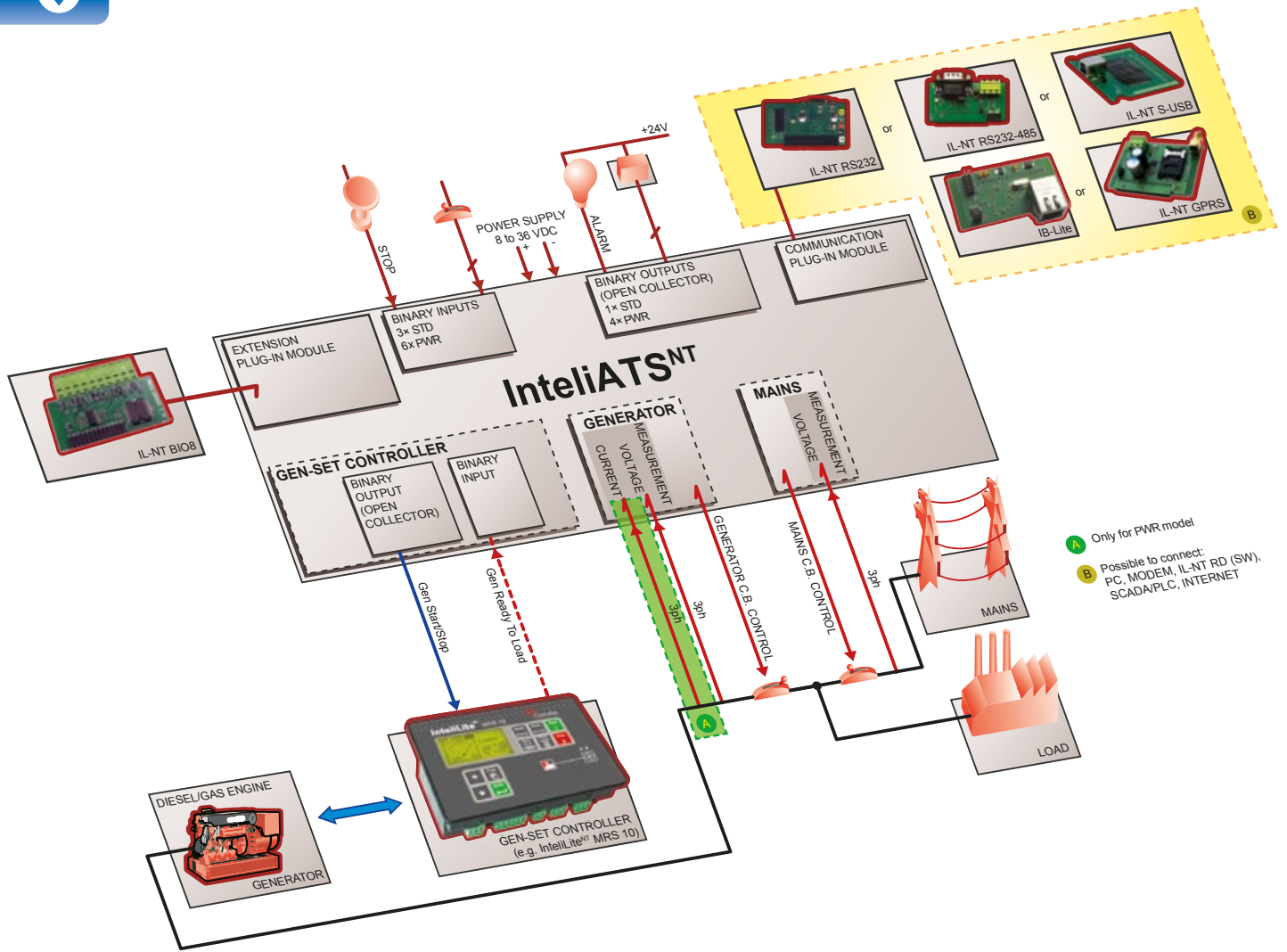
- All items from InteliATS^{NT} STD plus:
- 3 phase true RMS current measurements: generator current up to 5 A, maximal measured current 10 A, CT ratio range 1–5000
- 3 >c, c asymmetry
- Power measurement: active/reactive power and power factor per phase. Active/reactive energy counter. Apparent power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

TYPICAL APPLICATION:

**Open/delayed transition
– auto/manual transfer**

see page 103

InteliATS^{NT}



Mechanical and operation parameters

- Unit dimension 120x180 mm
- Sealed front face rated for IP65
- Hard plexiglass LCD cover
- Operation temperature:
 - -20°C to +70°C
- Power supply voltage 8–36 V
- Voltage drops shorter than 50 ms do not affect operation

Communication interfaces

- Optional RS232 (including Modem support), RS485 or USB plug-in interface
- Modbus RTU/TCP (requires RS485 interface/IB-Lite)
- Optional Internet/Ethernet via IB-Lite
- On-line control and monitoring over web pages via IB-Lite (embedded Web server)
- Optional GSM modem/wireless Internet via IL-NT GPRS¹⁾

Accessories and PC tools

- **IL-NT GPRS** see page 62
- **IB-Lite** see page 62
- **IL-NT BIO8** see page 63
- **IL-NT RS232** see page 63
- **IL-NT RS232-485** see page 63
- **IL-NT S-USB** see page 63
- **IL-NT RD (SW)** see web pages
- **WinScope** see page 72
- **LiteEdit** see page 72
- **WebSupervisor** see page 73
- **InteliMonitor** see page 76

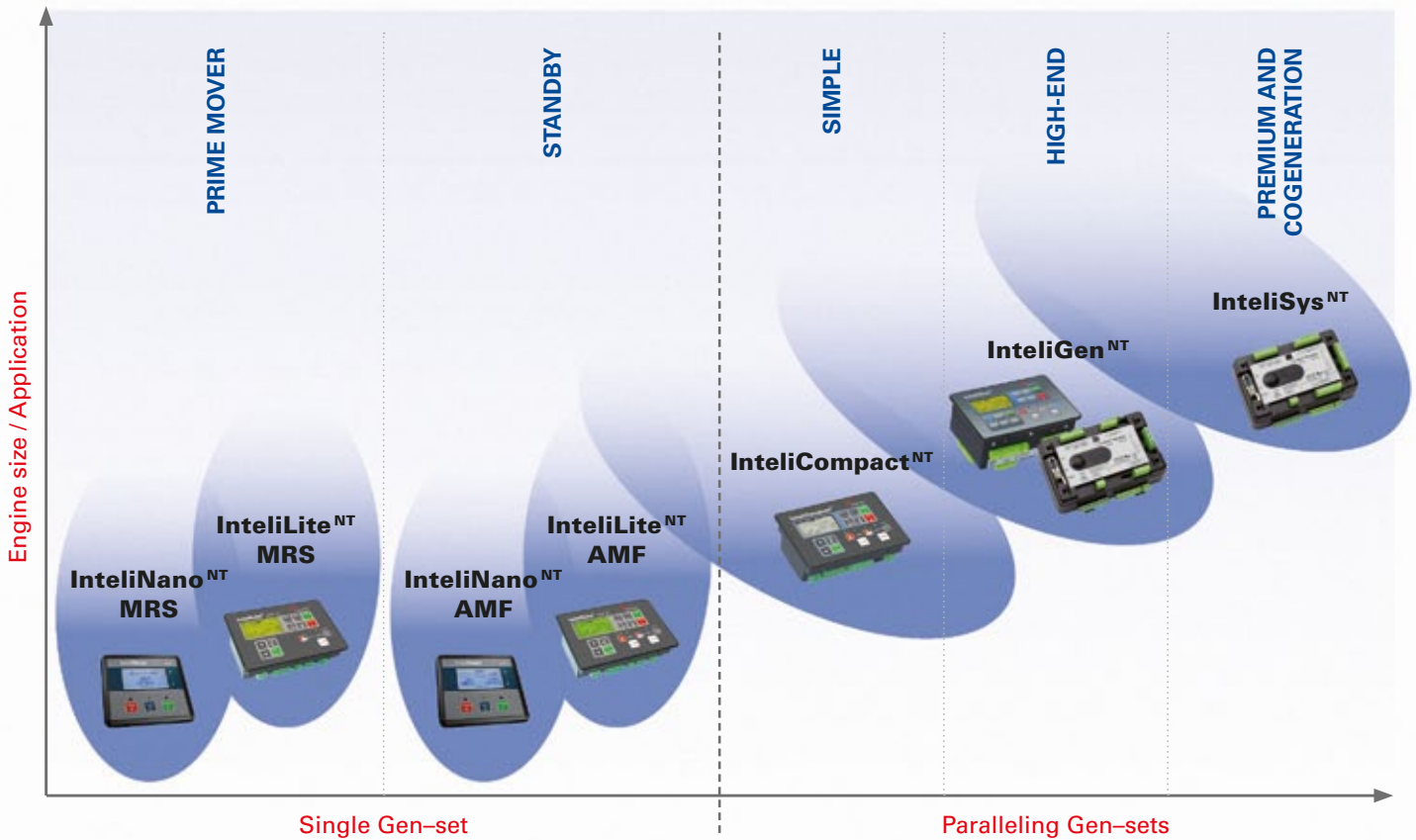
United Kingdom

Silverwood Business Park

This project is equipped with two gen-sets and one incoming mains supply. The site uses the ComAp InteliLite^{NT} AJP3200 controllers and the ComAp InteliATS^{NT}, there are 2x IL-NT AJP3200 remote display panels and an InteliATS^{NT} PWR on the switchboard. The 2 gen-sets also have 2x IL-NT AJP3200 panels fitted on them. The InteliATS^{NT} has an IB-Lite fitted allow it to be connected into MITIE's local network via an Ethernet connection, and provides the facility to monitor and test the system via PC monitoring and control software.



1) Available from 2.3 or a more recent SW version



ANSI CODES



IntelliNano ^{NT}		IntelliLite ^{NT}		IntelliCompact ^{NT}		IntelliGen ^{NT}		IntelliGen ^{NTC} BaseBox		IntelliSys ^{NTC} BaseBox		IntelliMains ^{NTC} BaseBox	
ANSI code	Protection	ANSI code	Protection	ANSI code	Protection	ANSI code	Protection	ANSI code	Protection	ANSI code	Protection	ANSI code	Protection
27	Undervoltage	27	Undervoltage	12	Engine overspeed	25	Synchronism check	25	Synchronism check	25	Synchronism check	25	Synchronism check
47	Phase rotation*	32	Overload	14	Underspeed	27	Undervoltage	27	Undervoltage	27	Undervoltage	27	Undervoltage
59	Overvoltage	46	Current unbalance	25	Synchronism check	32	Overload	32	Overload	32	Overload	32	Overload
71	Gas (fuel) level	47	Voltage asymmetry	27	Generator overvoltage	32P	Load shedding	32P	Load shedding	32P	Load shedding	32P	Load shedding
81H	Overfrequency	47	Phase rotation**	32	Generator overload	32R	Reverse power	32R	Reverse power	32R	Reverse power	37	Undercurrent*
81L	Underfrequency	50	Generator overcurrent*	32R	Generator reverse power	37	Undercurrent*	37	Undercurrent*	37	Undercurrent*	46	Current unbalance
* Fixed setting		50N+64	Earth fault current	40	Excitation loss	40	Excitation loss	40	Excitation loss	40	Excitation loss	47	Voltage asymmetry and phase sequence
		51	Generator overcurrent, IDMT*	46	Generator current unbalance	46	Generator current unbalance	46	Generator current unbalance	46	Generator current unbalance	49T	Temperature monitoring*
		59	Overvoltage	47	Generator voltage unbalance and phase sequence	47	Voltage asymmetry and phase sequence	47	Voltage asymmetry and phase sequence	47	Voltage asymmetry and phase sequence	50	Overcurrent
		71	Gas (fuel) level	50	Generator short current	49T	Temperature monitoring*	49T	Temperature monitoring*	49T	Temperature monitoring*	51	Overcurrent, IDMT
		81H	Overfrequency	50N+64	Earth fault current	50	Generator overcurrent	50	Generator short current	50	Generator short current	55	Power factor*
		81L	Underfrequency	51	Generator overcurrent, IDMT	50N+64	Earth fault current*	50N+64	Earth fault current*	50N+64	Earth fault current*	59	Overvoltage
		59	Generator undervoltage	51	Generator overcurrent, IDMT	51	Generator overcurrent, IDMT	51	Generator overcurrent, IDMT	51	Generator overcurrent, IDMT	78	Vectorshift
		71	Gas (fuel) level	51N+64	Earth fault current, IDMT	51N+64	Earth fault current, IDMT	51N+64	Earth fault current, IDMT	51N+64	Earth fault current, IDMT	79	AC Reclosing
		78	Vector shift	55	Power factor*	55	Power factor*	55	Power factor*	55	Power factor*	81H	Overfrequency
		81H	Generator overfrequency	59	Overvoltage	59	Overvoltage	59	Overvoltage	59	Overvoltage	81L	Underfrequency
81L	Generator underfrequency	71	Gas (fuel) level	71	Gas (fuel) level	71	Gas (fuel) level	71	Gas (fuel) level	81R	ROCOF		
78	Vectorshift	78	Vectorshift	78	Vectorshift	78	Vectorshift	78	Vectorshift	* can be created using universal protections			
79	AC Reclosing	79	AC Reclosing	79	AC Reclosing	79	AC Reclosing	79	AC Reclosing				
81H	Generator overfrequency	81H	Generator overfrequency	81H	Generator overfrequency	81H	Generator overfrequency	81H	Generator overfrequency				
81L	Generator underfrequency	81L	Generator underfrequency	81L	Generator underfrequency	81L	Generator underfrequency	81L	Generator underfrequency				
81R	ROCOF	81R	ROCOF	81R	ROCOF	81R	ROCOF	81R	ROCOF	* can be created using universal protections			
* can be created using universal protections		* can be created using universal protections		* can be created using universal protections		* can be created using universal protections		* can be created using universal protections					

Mains Protections





MainsPro

MAINS DECOUPLING RELAY

MainsPro is a protection relay unit for parallel-to-mains applications, including generator sets, cogeneration, micro turbines or renewable energy sources such as photovoltaic plants, water turbines or wind turbines. It provides adjustable voltage, frequency and loss of mains protections to safeguard both the distribution network and the generators.



Features

- True RMS measurement for increased accuracy and reliable failure evaluation
- Vector Shift and ROCOF protections available in one unit
- Symmetrical components for precise detection of voltage asymmetry failures
- Two stage voltage and frequency settings for more accurate selectivity
- Adjustable time delay of automatic fault reset
- Universal power supply 8-40 VDC, 85-265 VAC, 110-370 VDC
- Selectable voltage range 120/230/400 VAC with overreach to 156/290/520 VAC makes the unit independent on application
- Supports 3-phase and 1-phase applications
- Trip record of the five last failure events



Solar Power Plant Redruth, United Kingdom

This project is a 50 kWp photovoltaic system on a cream factory Rodda's, the cream makers since 1890, located in Redruth. There are MainsPro units at the site as a part of the G59/2 switchboard installed by the 2020 Solar, company that offers complete solutions for solar photovoltaic applications.

"Our systems are tested and verified by local electricity companies as part of G59/2 grid connection procedures and have always passed first time. We always use MainsPro relays in our G59/2 protection cabinets because of the high quality, easy of use and excellent service from ComAp."

"We have more projects like these in the pipe line and also offer complete grid protection solutions to our clients with of course the MainsPro as a central component. Also, arranging on-line trainings helps us to understand ComAp products better. We really like MainsPro because it is virtually plug and play" said Ronnie Bakker, 2020 Solar Technical Director.



Water Power Plant Cenek's Saw-mill, Czech Republic

Cenek's Saw-mill is a hydroelectric plant with a tradition – it was originally used for processing timber. In 1912 the reconstruction of saw-mill to electric power station was initiated and the plant was equipped with horizontal Francis turbine and 125 HP, 8-pole generator,

which is in operation until today. The entire power plant, including 50 m long aquaduct, is registered on the heritage list of the Ministry of Culture.

In 2010, the operator ČEZ Renewable resources, s. r. o., equipped the generator connection by MainsPro protection relay. The unit provides voltage and frequency protection for the 3 kV distribution network and generator disconnection in case of mains failure. MainsPro is fitted in a metal box in the original electromechanical protection unit cover to keep the historical look of the switchboard.

TYPICAL APPLICATION:

More loads – multiple grids

see page 91

Solar

see page 104

Water

see page 104

MainsPro



InteliPro

UTILITY PROTECTION RELAY

InteliPro is a highly flexible interconnection/mains decoupling protective relay with extensive protective functions. It meets the strictest utility interconnection requirements and can be used in wide ranges of distributed generation application such as Photovoltaic, Wind, Fuel Cell, Bio Mass, Combined Heat and Power, etc.

Plus, the advanced communication capability, including remote monitor/control via web browser, active SMS, e-mail messaging and data/event logging, makes InteliPro an excellent choice for remote controlled/monitored installation.

Communication modules

- **IB-Lite** see web pages
- **IL-NT RS232** see web pages
- **IL-NT GPRS** see web pages
- **IL-NT RS232-485** see web pages
- **IL-NT S-USB** see web pages

Extension modules

- **Relay Card CT2-REL2** see web pages
- **IC-NT CT-BIO7** see web pages
- **IG-IOM** see web pages
- **IGS-PTM** see web pages



Simply connected

WebSupervisor



Features

- True RMS measurement of U, f, I for increased accuracy and reliable failure evaluation
- Sealed to IP65 for door-mount application
- Password protection to secure settings of the unit
- Full configurability with support of I/O extension modules for increased flexibility
- Microprocessor based with watchdog to increase reliability
- Event/Time based history to facilitate detailed fault diagnostics
- Distant configuration through LiteEdit computer application
- Availability of optional features to suit best to the utility requirements
- Suitable for medium-voltage systems



TEDOM Třebíč, Czech Republic

"TEDOM has been using ComAp mains decoupling relays for over 10 years – installing over 1500 units during this time on both new projects and upgrading older installations. MainsPro was first used immediately after the product release as a replacement for the

NPU protection unit that we used before. Typical uses for MainsPro include switchboards of cogeneration units and gen-sets operating in parallel with the public distribution network. MainsPro accurately measures and evaluates the essential mains parameters, and provides reliable mains-decoupling protection. It also brings added benefits including excellent usability, possibility of mechanical sealing, a wider range of features and the ability to switch two-set settings via an external contact".

Petr Sedláček, Electrical Department Manager, www.tedom.eu



O'Neills Manufacturing Plant Strabane, United Kingdom, Northern Ireland

AJ Power has recently supplied and commissioned a 710 kVA gen-set with full synch with the mains capability and InteliPro G59/2 protection at O'Neills International Sports company Ltd, a major sportswear factory in Northern Ireland.

O'Neills has a long relationship with Irish rugby, football and Gaelic Athletic Association and for many years was the exclusive supplier to all three associations. O'Neills also produces amateur boxing kits.

The O'Neill brand has become synonymous with the production of team kits, footballs and hurling balls for Gaelic games but is fast becoming a major supplier to rugby and soccer clubs across Ireland, Great Britain, Europe and America.

TYPICAL APPLICATION:

Combined heat and power (CHP) – cogeneration

see page 94

Complex installation – multiple grids

see page 98

Wind

see page 105

Cogeneration

see page 105

InteliPro

MAINS PROTECTIONS



Protective functionality	ANSI	InteliPro	MainsPro
Under/overvoltage and asymmetry (two stage setting)	27, 59, 47	■	■
Overfrequency, Underfrequency (two stage setting)	81H, 81L	■	■
Instantaneous over current	50	■	—
Time over current	51	■	—
Current asymmetry	46	■	—
Earth fault current	50N + 51N	■	—
Ground surge current	50GS + 51GS	■	—
Directional/Reverse power with time delay	32	■	—
Breaker failure		■	■
Phase sequence supervision		■	■
Auto fault reset		■	■
Maximum parallel time		■	—
Analog and binary inputs related protections		■	—
Battery voltage protection		■	■
Synch Check	25	■*	—
Time over current with voltage control	51V	■*	—
Neutral voltage displacement	59N	■*	—
Directional overcurrent	67	■*	—
Vector shift	78	■*	■
Pole slip	78PS	■*	—
AC reclosing relay	79	■*	—
Rate of change of frequency + ROCOF filter	81R	■*	■
Binary switches: Ext. trip, Fault reset, Activate/de-activate, Alternative parameters		—	■

* Optional feature, activation via ComAp application. Please contact your nearest ComAp distributor to get more information.

Certification

MainsPro

- Certified according to IEC 60255, VDE 0126-1-1, UL 508, CEI 0-21, CERTYFIKAT IEn NR 005/2012, VDE-AR-N 4105 and ENEL requirements
- Applicable for the requirements of G59/2, G77, G83

InteliPro

- Certified according to IEC 60255, VDE 0126-1-1 and UL 508 requirements
- Applicable for the requirements of G59/2, G10, G83 and IEEE1547



Drive Power



InteliDrive Nano

ENGINE CONTROLLER FOR PUMPS AND COMPRESSORS

The InteliDrive Nano is cost effective engine controller, which features outstanding control, monitoring and protection for electronic and conventional diesel/gas engines. The controller is suitable for pumps, compressors etc.

All settings can be configured using the controller buttons or DriveEdit PC software. The controller uses a symbol-based graphic display so users can quickly and easily interpret information. Its history-log aids troubleshooting and helps protect the equipment warranty.

The InteliDrive Nano can communicate via standard and proprietary CAN J1939 protocols, to a wide range of constant-speed and variable-speed engines, including Caterpillar, Cummins, Detroit Diesel, Deutz, GM, Isuzu, Iveco, John Deere, MAN, MTU, Perkins, Scania, Sisu, Volvo Penta and many others.



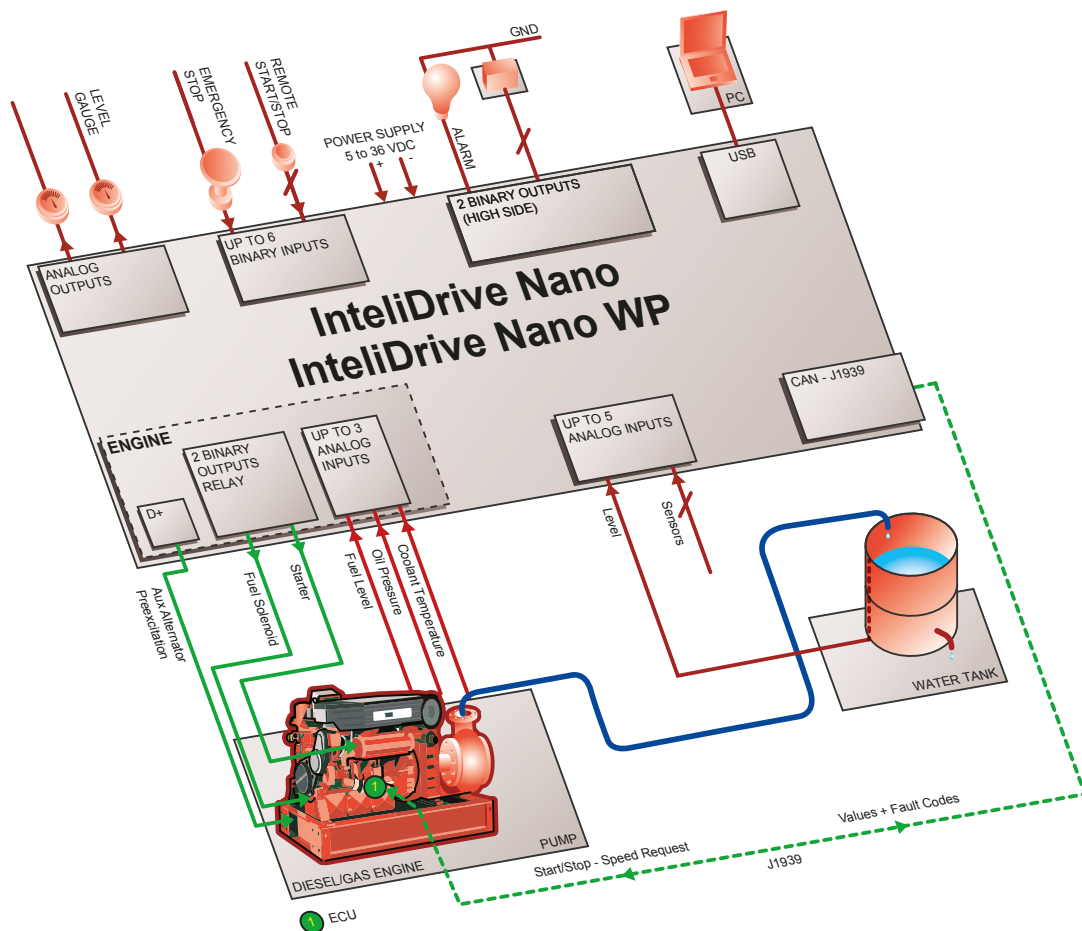
Benefits

- Integrated solution – less wiring and no external components
- Automatic or manual engine speed control
- Automatic start/stop; remote start; PID control loop and comparator
- Easy to use, symbol based display
- History event log (10 events)
- Customer configuration can be pre-loaded at the factory
- Perfect price/performance ratio
- “Zero” power consumption, i.e. extended battery life

Features

- Engine control, monitoring and protection
- Electronic engines support – J1939 interface
- 1 RPM input
- 4 binary inputs (high side)
- 4 binary outputs
 - 2 configurable binary outputs (high side switch 0,5 A)
 - 2 binary relay outputs – 10 A
- Up to 8 analog inputs
 - 3 configurable analog inputs (VDO)
 - 3 configurable analog inputs (0–20 mA)
 - 1 configurable analog input (0–2400 Ohm)
 - 1 configurable analog input (0–10 V)
- 2 analog outputs (0–5 V)
- Selectable protection alarm/shutdown
- Setpoints adjustable via controller buttons
- 10 events, warnings or shutdown alarms with running hours stamp
- Engine speed control adjustable via controller buttons
- Push buttons for simple control, lamp test
- Graphic back-lit LCD display 128 × 64 pixels
- 3 LED indicators
- Power supply 8–36 VDC
- Operating temperature: -20°C to +85°C
- InteliDrive Nano controller meets several standards (CE, EN)
- Front panel sealed to IP65
- Dimensions (cut-out): 91 mm × 91 mm

InteliDrive Nano



IntelliDrive Nano WP

WATERPROOF ENGINE CONTROLLER FOR PUMPS AND COMPRESSORS

In addition to the standard IntelliDrive Nano features, the IntelliDrive Nano WP model also features a rear panel sealed to IP65 and a 18 pin Deutsch connector.



IntelliDrive Nano WP rear side view



TYPICAL APPLICATION:

Pump system

see page 106

ID-Nano Harness-2
optional accessory for IntelliDrive Nano WP



InteliDrive Lite

ENGINE CONTROLLER FOR PUMPS AND COMPRESSORS

The InteliDrive Lite is a cost effective and sophisticated engine controller, which features outstanding control, monitoring and protection for both mechanical and electronic diesel/gas engines, all in one unit. The extended product family offers a range of engine-specific versions suitable for land-based and marine Tier 4 applications.

It can communicate via standard and proprietary CAN J1939 protocols, to a wide range of constant-speed and variable-speed engines, including Caterpillar, Cummins, Detroit Diesel, Deutz, GM, Isuzu, Iveco, John Deere, MAN, MTU, Perkins, Scania, Sisu, Volvo Penta and many others. The controller comes with LiteEdit PC software, enabling the user to easily configure the inputs and outputs to suit individual requirements.

Like all ComAp engine controllers, InteliDrive Lite features a powerful back-lit graphic display, providing vital information in an easy to understand format. A real-time clock, coupled with event and performance history logging, is priceless when it comes to troubleshooting. Remote control and monitoring is possible via analog/GSM/GPRS modem or Internet. The ability for internal values from the InteliDrive Lite to be displayed on analog gauges gives users the flexibility to create highly-customized instrumentation with ease.

TYPICAL APPLICATION:

Irrigation pump system

see page 107



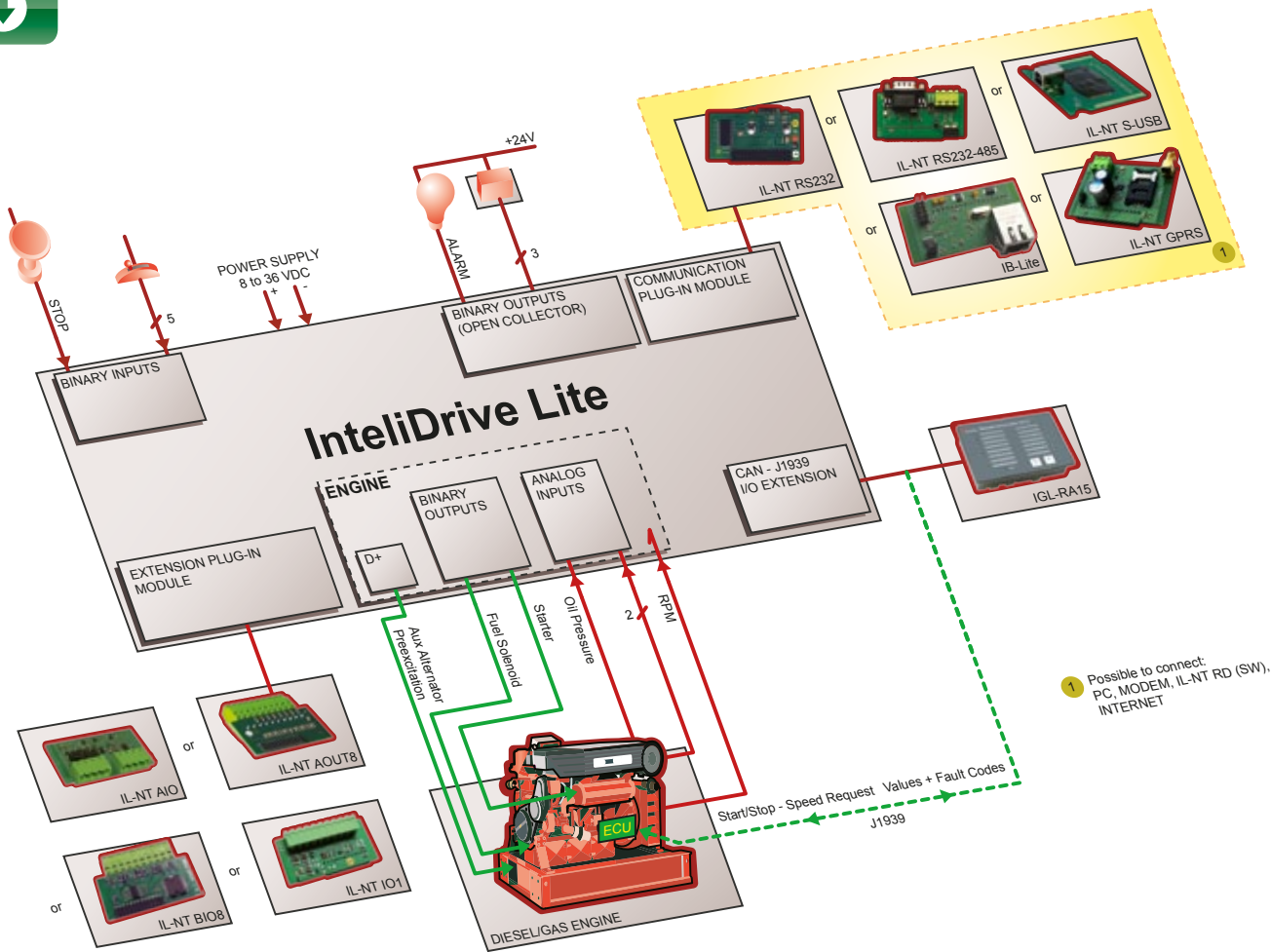
Benefits

- Integrated solution – less wiring and components
- Available Remote Display panel – economical solution for remote control
- Analog gauge (VDO, Datcon and others) outputs – operator friendly
- History log – easy troubleshooting
- Pressure regulation loop and Load limitation
- Smooth engine speed control
- Less engineering and programming
- Perfect price/performance ratio

Features

- Engine control, monitoring and protection
- Support of engines equipped with Electronic Control Unit (ECU) – J1939 or Cummins Modbus interface
- Tier 4 emission standard support
- 7 configurable binary inputs
- 7 configurable binary outputs
- 9 configurable analog inputs (3 resistive, 6 voltage)
- VDO type analog gauges outputs – 8 configurable channels
- Selectable protections warning/shutdown
- Setpoints adjustable via controller buttons or PC tools
- 3 level of password protection
- Ethernet, USB, RS485 or RS232/Modem/Modbus communication
- Real time clock and event history log
- Engine speed control by Up/Down controller buttons 3 predefined binary inputs, Speed Up/Down binary inputs or one analog input
- PLC functions: PID loop, Comparators, Timers
- Analog oil pressure, water temperature, fuel level, battery voltage, engine speed (pick-up)
- Automatic, manual or remote start/stop of the engine
- Push buttons for simple control, lamp test
- Graphic LCD backlit display 128 x 64 pixels
- 4 LED indicators
- Front panel sealed to IP65
- Power supply 8–36 VDC
- Operating temperature:
 - 20°C to +70°C regular unit
 - 40°C to +70°C low temperature unit
- InteliDrive Lite controller meets several standards (EN, UL, NFPA)

InteliDrive Lite



Communication modules and PC tools

- **IL-NT GPRS** see page 68
- **IB-Lite** see page 69
- **IL-NT RS232** see page 69
- **IL-NT RS232-485** see page 69
- **IL-NT S-USB** see page 69
- **WinScope** see page 72
- **LiteEdit** see page 72
- **WebSupervisor** see page 73
- **IntelliMonitor** see page 76

Extension modules and rem. displ.

- **IL-NT AIO** see page 68
- **IGL-RA15** see page 69
- **IL-NT AOUT8** see page 69
- **IL-NT BIO8** see page 69
- **IL-NT IO1** see page 69
- **IL-NT RD (SW)** see web pages

Relay board I-RB8

- 8 relays for IntelliDrive Lite binary outputs separation
- Each channel has both N.O. and N.C. contacts available
- LED state indication
- see web pages

New Zealand

Frost protection machines

The Marlborough district of New Zealand produces some of the country's most famous wines and the vineyards and orchards must be well protected against the frosts that can destroy multi-million dollar crops overnight. Control and monitoring of engines which drive fans for frost protection machines is done with ComAp IntelliDrive Lite controllers.

The complete system is designed and built by FMR Group Ltd of Blenheim who were assisted by GreenBird Technology, the local ComAp distributor.





InteliDrive Lite DC

DC GENERATOR CONTROLLER

The InteliDrive Lite DC controller is used to control DC generators and external DC power sources (e.g. Solar, Wind or Fuel) which recharge batteries in off-grid electric applications.

The controller has an LCD screen for system information and fault indications, and control buttons to switch between automatic and manual operation.

Manual operation allows the engine to be started using the buttons on the fascia of the controller, or by external buttons on a control panel.

Automatic mode allows system start according to the battery voltage level. If it reaches a predetermined level, the controller automatically turns on or off the power source to ensure continuity of power.

Parameters for engine control are adjustable from the front of the controller, (which can be password protected) or by using the complimentary LiteEdit computer software.

The advanced features of the controller ensure optimization of battering life and reduced fuel consumption.

Functions

- Automatic Start and Stop according to the accumulator voltage and charging current
- Charging cycle for battery (Bulk, Absorption cycle)
- Charging current/voltage regulated by speed (variable speed engines) or excitation (single speed engines)
- Voltage compensation according to battery temperature
- Charging time limitation and other protection
- Service cycle allows the maintenance people to trigger the charging manually
- Remote communication via GPRS, AirGate or Ethernet
- ComAp SCADA compatible (several equipments creating the network)
- History log (remote device with the accumulator always generates troubles which the maintenance try to unriddle)
- Controller Buttons replace extra buttons (Start, Stop etc.)

TYPICAL APPLICATION:

DC generator for Off-Grid power systems

see page 110



Benefits

- Integrated solution for two sources of power (DC Generator and Solar energy or Wind Energy etc.)
- Support for PM (Permanent Magnets) generators
- Possibility of monitoring or control via internet
- Warnings and messages from controller to your mobile phone by SMS
- Perfect price/performance ratio

Features

- Support of engines equipped with Electronic Control Unit (ECU) – J1939 or Cummins Modbus interface
- Selectable protections alarm/shutdown
- Setpoints adjustable via controller buttons or PC
- 3 levels of password protection
- USB, RS485 or RS232, GSM/GPRS, Modbus communication
- Real time clock and event history log
- Engine speed control by 3 predefined binary inputs, Speed Up/Down binary inputs or 1 analog input
- Analog oil pressure, water temperature, fuel level, battery voltage, engine speed (pickup)
- Push buttons for simple control, lamp test
- Graphic back-lit LCD display 128 x 64 pixels
- 7 configurable binary inputs and outputs
- 9 configurable analog inputs
 - 3 resistive inputs
 - 2 inputs 0–54 V
 - 4 inputs 0–10 V
- VDO type analog gauges outputs – 8 configurable channels
- 4 LEDs indicators
- Front panel sealed to IP65
- Power supply 8–36 VDC
- Operating temperature
 - -20 °C to +70 °C regular unit
 - -40 °C to +70 °C low temperature unit
- The controller meets several standards (EN, UL)

InteliDrive Lite DC



InteliDrive Lite FPC

FIRE PUMP CONTROLLER

InteliDrive Lite FPC (Fire Pump Controller) is modular engine controller designed for diesel driven fire pumps applications based on the NFPA 20 standard.

The controller utilises the hardware of a standard ComAp industrial engine controller, with a proven track record for flexible and reliable control gas or diesel applications.

Manual operation allows the diesel engine to be started using local buttons on the fascia of the controller or by external buttons on the control panel. Automatic mode of operation provides starting by a remote digital input switch or system pressure switch.

The control system incorporates two battery starter systems; the controller monitors the voltage on both battery systems, automatically switching between battery sets on a cyclic basis or low battery voltage condition.



Simply connected



Simply here



WebSupervisor

Benefits

- Integrated solution – less wiring and components, less programming
- Available Remote Display panel – economical solution for remote control
- Possibility of monitoring and control via Internet and cellular network
- Analog gauge (VDO, Datcon and others) outputs – operator friendly
- History log – easy troubleshooting
- Pressure regulation loop and Load limitation
- Smooth engine speed control
- Perfect price/performance ratio



InteliDrive Lite EM

ELECTRIC MOTOR CONTROLLER

The InteliDrive Lite EM is an integrated control solution for Single or Three phase AC electric motors. It allows operation of the motor either manually, remotely or automatically. The InteliDrive Lite EM controller has many motor protections as standard including both overload and overcurrent protection. Many different applications which are driven by an electric motor, can be controlled and protected by the InteliDrive Lite EM.

Like all ComAp products, ease of use is an important design philosophy, so InteliDrive Lite EM features a powerful graphic display providing user-friendly information in an easy to understand format. Instrumentation of internal values on analog gauges makes it simple to use, even for untrained personnel.



Simply connected



Simply here



WebSupervisor

Benefits

- Internet or cellular network (GPRS) monitoring and control. Remote monitoring and control helps reduce any call-out costs of service engineers
- ComAp SCADA system (Line Diagram Editor) compatible
- Active SMS or E-mails in the event of an alarm
- Detailed History Log allows for easy troubleshooting and warranty claim handling
- ON/OFF regulation of process value, based on binary or analog signal
- Less engineering and programming is needed for a wide range of applications

InteliDrive DCU Industrial

MODULAR ENGINE CONTROLLER FOR INDUSTRIAL APPLICATIONS

The InteliDrive DCU Industrial is a highly flexible sophisticated engine controller, which features outstanding control, monitoring and protection for both mechanical and electronic diesel/gas engines as well as peripheral equipment. The extended product family offers a range of engine specific versions suitable for land-based applications. Most commonly, these tailored applications meet the specific control requirements of engine driven compressors and pumps.

InteliDrive DCU Industrial can communicate via standard and proprietary CAN J1939 communication protocols to a wide range of EFI engines, which include Caterpillar, Cummins, Detroit Diesel, Deutz, GM, Isuzu, Iveco, John Deere, MAN, MTU, Perkins, Scania, Sisu, Volvo Penta and others. Designed to be highly flexible, InteliDrive can be expanded by means of additional modules to offer over 100 binary inputs and outputs.

The set of PLC (analog and binary) functions is available in the standard software and can be used by the customer to control and regulate drive-train components.

Like all ComAp products, InteliDrive DCU Industrial features a powerful graphic display providing user-friendly information in an easy to understand format – not only for professionals but also for occasional users. The diagnostic information is available in intelligible plain text instead of potentially misleading cryptic codes or flashing lights.

Remote control and monitoring is possible via analog/GSM modem, SMS or Internet.

TYPICAL APPLICATION:

Gas compressor

see page 111

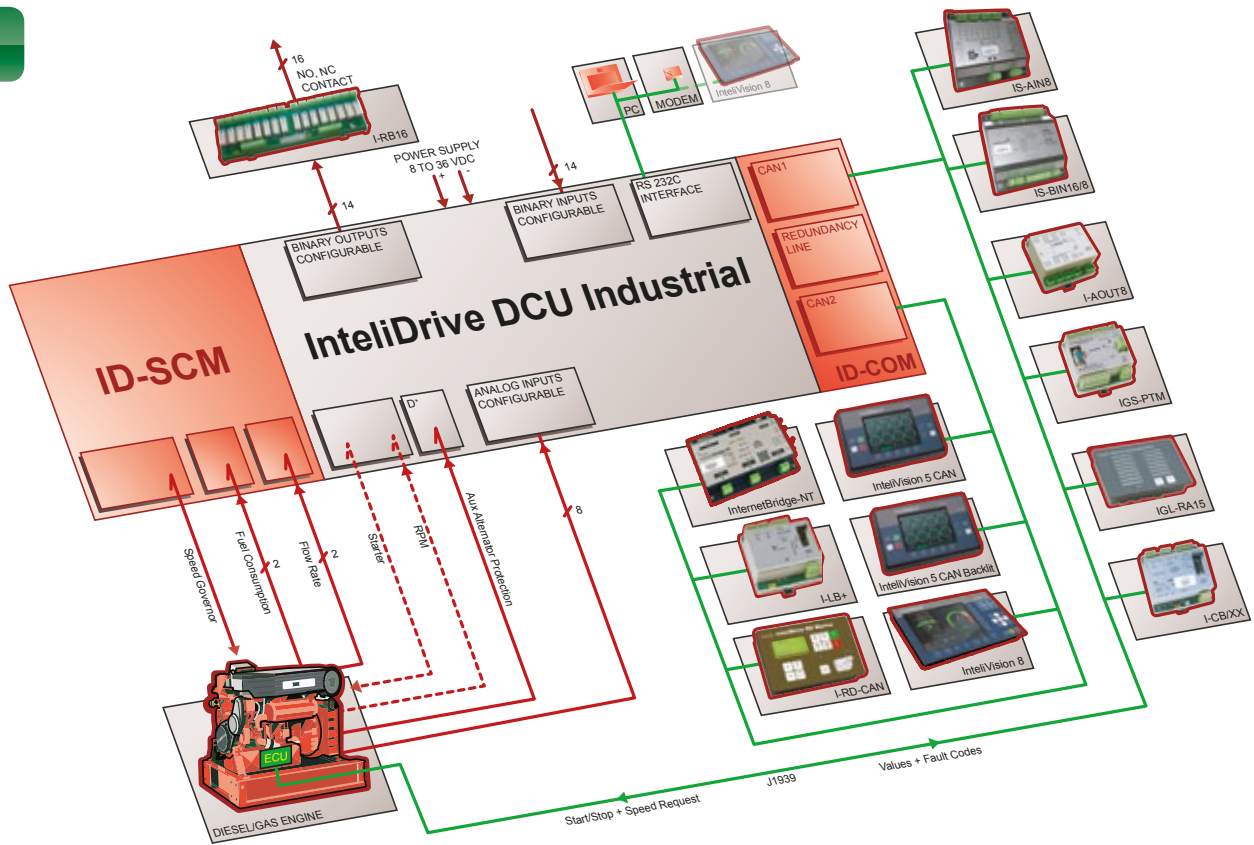


Benefits

- Integrated solution with hardwired safety functions – less wiring and components
- Full communication support of engines with ECU – simpler wiring, access to information from ECU via Modbus
- Event driven History record, easy backtracking and problem solving
- Load sharing for propulsion engines – better power utilization of installed engines
- Slave panels available – economical solution of remote control
- Integrated clutch control – less wiring and components
- Many types of communication – easy supervision and servicing
- Perfect price/performance ratio
- Built-in PLC-integrated control of compressors, pumps or other driven technology

Features

- Engine control, monitoring and protection
- 14 binary inputs, 14 binary outputs, 8 analog inputs
- RS232/Modem/Modbus/Internet communication
- Engine measurement from sensors or via J1939
- Input/output and J1939 configuration
- Running hours meter, number of starts counter
- Graphic back-lit LCD display with icons and bar graphs
- Sealed membrane panel to IP65
- 180x 120 mm front panel mounted case
- Operating temperature:
 - 20 to +70°C regular unit
 - 40 to +70°C low temperature unit
- 3 level password protection
- InteliDrive DCU Industrial controller meets several forcing counter standards (EN, UL, CSA, NFPA)
- Internal – configurable PLC functions



Speed control modules ID-SCM, ID-SCM1

- 2x RPM, 2x IMP, 3x AOUT
- see pages 70, 71

Communication interface ID-COM

- Multi-controller and/or Remote display communication and/or InternetBridge-NT and/or I-LB+
- see page 71

Comm. modules and PC tools

- **InternetBridge-NT** see page 71
- **I-CB** see page 71
- **I-LB+** see web pages
- **WinScope** see page 72
- **InteliMonitor** see page 76
- **DriveConfig** see page 77
- **DriveMonitor** see page 77
- **InteliSupervisor** see web pages

Configurable PLC functions

- Logical functions: AND, OR, XOR, RS
- Comparators with delay or with hysteresis
- Analog switch from two inputs to one output
- Math. functions: ADD, SUB, MAX, MIN, AVG
- Linear interpolation, Moving average
- PID loops with analog or binary outputs
- Counters, Timers, Delay functions
- History and protection forcing

Relay board I-RB8 / I-RB16

- 8 or 16 relays for IntelDrive DCU Industrial (ID-RPU) binary outputs separation
- Each channel has both N.O. and N.C. contacts available
- LED state indication
- see web pages

Extension modules and rem. displ.

- up to 4x **IGL-RA15** see page 71
- up to 4x **IGS-PTM** see page 71
- up to 4x **IS-AIN8** see page 71
- up to 4x **IS-BIN16/8** see page 71
- up to 4x **I-AOUT8** see web pages
- up to 3x **I-RD-CAN** see web pages
- up to 3x **InteliVision 5 CAN** see page 59
- up to 3x **InteliVision 5 CAN Backlit** see page 59
- up to 3x **InteliVision 8** see page 60

Indonesia

Rockcrush Dredge

SIS Mining Management were looking for a system capable of economically removing overburden from a coal mine, 100 m below ground near Borneo, Indonesia. Australia based Power and Drive Solutions provided a system capable of controlling and monitoring the entire infrastructure from a single operator's seat. The system comprised of a diesel driven dredge to process the overburden, and a network of boosters to lift the dense mass 100 meters vertically, and then through 800 meters of pipe to an open pit. Power & Drive Solutions utilized ComAp's IntelDrive DCU controllers to control the engines as well as the ancillary equipment. The built in logic functions allowed for the entire pumping system to be controlled from the IntelDrive DCU, thus making integration a simple single point connection.



InteliDrive DCU Marine

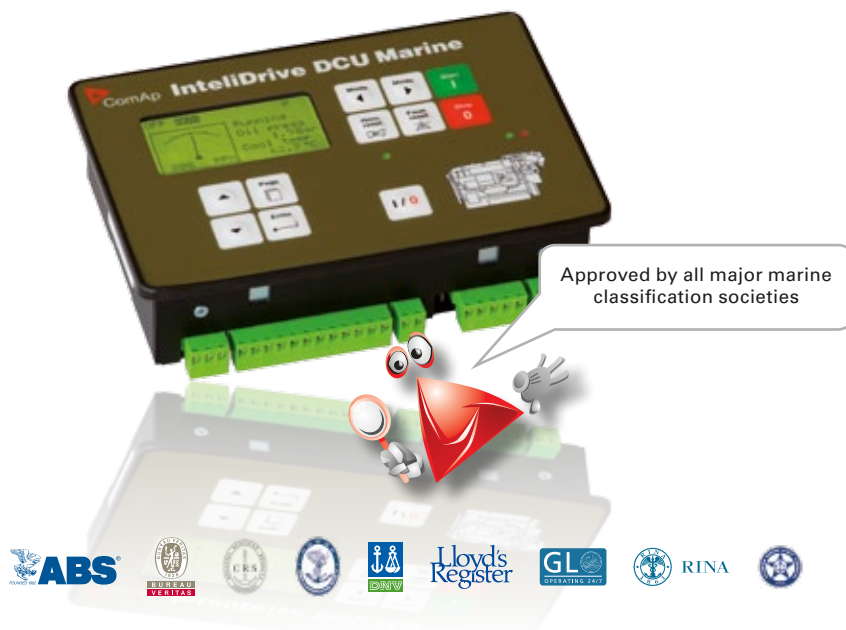
MODULAR ENGINE CONTROLLER FOR MARINE APPLICATIONS

The InteliDrive DCU Marine is an engine controller specifically designed to meet the demanding requirements of the marine market. The unit provides a high level of performance with extensive communications and safety functions, as well as primary/ secondary power switching.

The controller is easily integrated into the ship's control system and has the capability fully communicate with electronic engines. ComAp developed this capability for their market leading genset controllers, and adapted it to function in the marine environment through the use of J1939 communication buses.

The InteliDrive DCU Marine has an engine specific approach which allows the unit to communicate fully with the engine's Electronic Control Unit (ECU), delivering a greater range of values, and most importantly, delivering all diagnostic information in easy to read text, rather than potentially confusing codes or flashing lights.

The InteliDrive DCU Marine provides users with a highly flexible control solution, with configurable inputs and outputs allowing the controller to be customized to a particular application without the need for complicated programming.



Benefits

- Integrated solution with hardwired safety functions – less wiring and components
- Full communication support of engines with ECU – simpler wiring, access to information from ECU via Modbus
- Event driven history record, easy backtracking and problem solving
- Load sharing for propulsion engines – better utilization of power from installed engines
- Slave panel available – economical solution for remote control
- Integrated clutch control – less wiring and components
- Many types of communication – easy supervision and servicing
- Perfect price/performance ratio
- Type approval from major certification societies

Features

- Engine control, monitoring and protection
- 14 binary inputs and outputs, 8 analog inputs
- RS232/Modem/Modbus/Internet communication
- Redundant module ID-RPU with hardwired safety functions activated in backup mode
- Switching between primary and secondary battery (with ID-RPU module)
- Automatic switchover to backup mode in case of detection of main unit failure
- Internal – configurable PLC functions
- Graphical screen with icons and bar graphs
- Event and time driven history record for backtracking
- Different engine application support: Auxiliary, Emergency/Harbour, Propulsion
- Clutch control for propulsion engines
- Symmetrical load sharing for propulsion engines with J1939 (via CAN bus)
- Extension modules for expandable number of Inputs/Outputs (connected via CAN bus)
- Slave panels for remote control available
- Inputs/Outputs configuration
- Configurable list of values that are read from J1939 bus
- Support of redundant J1587 communication bus
- Direct speed/load control via J1939 or J1587 buses
- Diagnostic information from J1939 or J1587 displayed in plain text easy to read
- Configurable Modbus and Modbus-TCP support for easy integration into the ship's control system

TYPICAL APPLICATION:

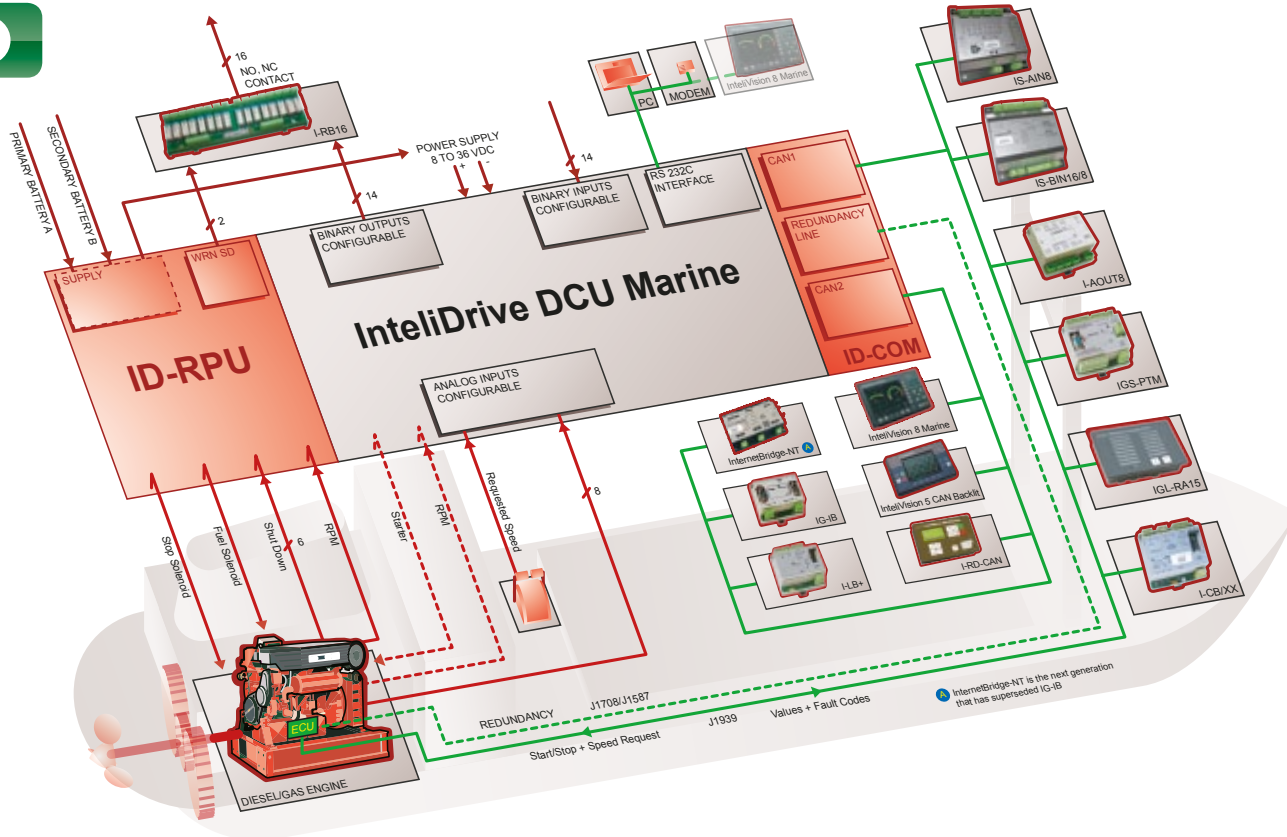
Ship power management system

see page 102

Ship control system

see page 114

InteliDrive DCU Marine



Redundant power module ID-RPU

- Supervision of IntelliDrive DCU Marine in stand-by mode
- Automatic backup mode activation if the main unit fails
- Hardwired safety functions in backup mode
- 1 emergency stop normally closed
- 5 shutdown channels with broken wires detection
- Fuel and Stop solenoids with broken wires detection
- Automatic switchover between primary and secondary battery
- Common alarm and Common shutdown outputs
- It is possible to use ID-SCM (see page 70) when ID-RPU is not connected
- see page 70

Communication interface ID-COM

- Multi-controller and/or Remote display communication and/or IG-IB and/or InternetBridge-NT and/or I-LB+
- Redundancy line J1708/J1587
- see web pages

Comm. modules and PC tools

- **InternetBridge-NT** see page 71
- **I-CB** see page 71
- **IG-IB** see web pages
- **I-LB+** see web pages
- **WinScope** see page 72
- **InteliMonitor** see page 76
- **DriveMonitor** see page 77
- **DriveConfig** see page 77
- **InteliSupervisor** see web pages

Relay board I-RB8 / I-RB16

- 8 or 16 relays for IntelliDrive DCU Marine (ID-RPU) binary outputs separation
- Each channel has both n.o. and n.c. contacts available
- LED state indication
- see web pages

Extension modules and rem. displ.

- up to 4x **IGL-RA15** see page 71
- up to 4x **IGS-PTM** see page 71
- up to 4x **IS-AIN8** see page 71
- up to 3x **IS-BIN16/8** see page 71
- up to 4x **I-AOUT8** see web pages
- up to 5x **I-RD-CAN** see web pages
- up to 5x **InteliVision 5 CAN** see page 59
- up to 5x **InteliVision 5 CAN Backlit** see page 59
- up to 4x **InteliVision 8** see page 60
- up to 4x **InteliVision 8 Marine** see page 60

United Kingdom

Turbine Transfers

Turbine Transfers Limited, a company owned wholly by Holyhead Towing approached IPU Group (Exclusive ComAp distributor in United Kingdom and Ireland) recently for a much needed engine control solution for their catamarans.

The Captains of the working catamarans used for the servicing of offshore wind turbines needed an easy to use, colour screen interface for control and monitoring of their propulsion engines. Engine monitoring is vital for the crew as their catamarans are expected to run at full power, while stationary, for long periods of time.

IPU Group engineers recommended and commissioned a ComAp solution.

A ComAp IntelliVision 8 was installed for full screen, colour monitoring, accompanied by the ComAp IntelliDrive DCU Marine controller. Working in conjunction, these products enabled a "plug and play" solution for Turbine Transfers Limited.



InteliDrive Mobile

ELECTRONIC CONTROLLER FOR MOBILE APPLICATIONS

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.

InteliDrive Mobile has been specially designed for harsh environments where mobile machinery is typically used. The unit construction features a fully environmentally sealed enclosure and connector, vibration and EMC robustness along with a wide temperature operating range.

InteliDrive Mobile can communicate via standard and proprietary CAN J1939 communication protocols to a wide range of EFI engines, which include Caterpillar, Cummins, Detroit Diesel, Deutz, GM, Isuzu, Iveco, John Deere, MAN, MTU, Perkins, Scania, Sisu, Volvo Penta and others.

The set of PLC (analog and binary) functions is available in the standard software for control of driven technology. Predefined highly flexible functional blocks enable to create a control algorithm without the need for complex programming. CAN-bus and RS485 communication lines together with optional internal GSM modem and GSM or GPRS module give perfect overview of system status to both local operator and technician in remote monitoring center.



Simply connected



Benefits

- Integrated solution, less wiring and components
- Support of engines with ECU – access to all available values and fault codes
- Designed specifically for harsh environment – trouble free operation in all conditions
- History log out, monitoring of wide range of parameters – easy troubleshooting and warranty claim handling
- Remote monitoring support – reduced call-out costs of service engineers
- AirGate connection technology for remote wireless monitoring and control, for localization and Geofencing

Features

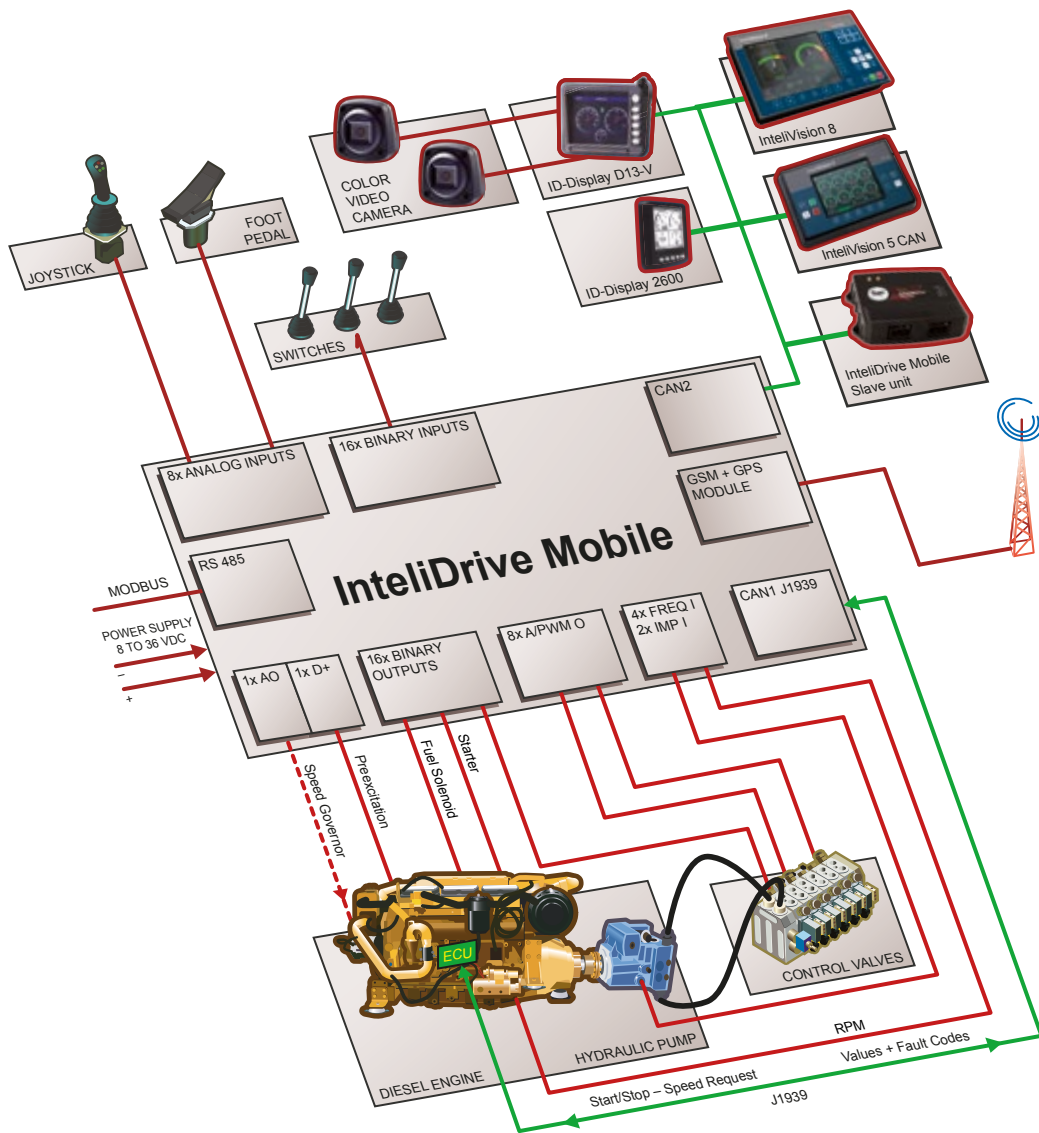
- J1939 support with Input/Output configuration for engine measurement and control
- Optional internal GSM or GPRS and GPS modem
- Compatible with AirGate
- Master-Slave concept to extend I/O and other functions
- Built-in PLC functions: Logical functions, Comparators, Analog switches, Mathematical functions, Linear interpolation, Filters, PID loops, Timers, Delay functions
- 4+12 Binary inputs with detection of broken wire
- 16 Binary configurable switches: 3A, High-side / Low-side, broken wire detection, PWM
- 8 Analog inputs configurable for industry standard sensors
- 8 Analog configurable inputs/outputs
- 2 Impulse inputs (e.g. for rotary flow meters)
- 4 Frequency inputs for RPM measurement
- Operating statistics (running hours etc.)
- RS485 communication line with Modbus
- CAN-bus connection of external displays
- Operating temperature: -40 to +85°C
- Supply voltage: 8-36 VDC continuously, 6 VDC for 1s
- EMC compatibility: EN61000-6-1/2/3/4, SS4631503(PL4), IEC 255-3
- Vibration resistivity: EN 60068-2-6; EN 60068-2-64
- Functional safety according to IEC 61508, SIL3
- Shock test: IEC 68-2-27
- Dust and water protection IP67

TYPICAL APPLICATION:

Forwarder

see page 112

InteliDrive Mobile



Various displays available

ID-Display 2600

- 4,25" FTSN, 160x128 pixels
- 110x110x38,5 mm



ID-Display D13-V

- 6,5" VGA, 640x480 pixels
- 203,5x162,5x74,7 mm



IntelliVision 5 CAN

- 5,7" TFT, 320x240 pixels
- 175x113x55 mm



IntelliVision 8

- 8" TFT, 800x600 pixels
- 289,5x186x40 mm



Australia

Wheel loader



IntelliDrive Mobile was used in this application because of the need for advanced PLC functionality to achieve a complex range of additional functions and safety features on this specially modified wheel loader. The programmable Hi-Resolution colour display fitted in the cab gave the operator specific text advice on alarms that were present, corrective actions needed as well as the option for camera display for rear or obstructed views.

- The unit has J1939 CAN interface as standard for direct communication and control with the electronic engine, the option of Geo-Fencing and GPRS modem communications.
- A robust IP67 rated waterproof, vibration and dust proof enclosure completed the package designed to exceed the most demanding environmental conditions.



InteliDrive Mobile Logger

DATA LOGGER FOR DIESEL AND GAS ENGINE DRIVEN OFF-ROAD AND INDUSTRIAL APPLICATIONS

InteliDrive Mobile Logger

The InteliDrive Mobile Logger is a highly flexible sophisticated data logger, which features outstanding, monitoring and history tracking for diesel engines as well as peripheral equipment.

InteliDrive Mobile Logger has been specially designed for harsh environment of outdoor industrial equipment.

The unit construction features a fully environmentally sealed enclosure and connector, vibration and EMC robustness along with a wide temperature operating range.

InteliDrive Mobile Logger can communicate via standard and proprietary CAN J1939 communication protocols to a wide range of EFI engines, which include Caterpillar, Cummins, Detroit Diesel, Deutz, GM, Iveco, Isuzu, John Deere, MAN, MTU, Perkins, Scania, Sisu, Volvo Penta and others. Extremely flexible input structure enables to support wide range of applications.

Rich set of Binary, Frequency or Analog Inputs is optimized for direct connection to all industry standard sensors and output devices.

CAN-bus and RS485 communication lines together with optional internal GSM modem and GPS module give perfect overview of system status to both local operator and technician in remote monitoring center.



Benefits

- Integrated solution, less wiring and components
- Engine specific, plug and play support of engines with ECU – access to all available values, without the need for programming
- Designed specifically for harsh environment – trouble free operation in all conditions
- Built-in Event & Performance Log – easy troubleshooting and warranty claim handling
- Remote monitoring support – reduced call-out costs of service engineers
- History log out – monitoring of wide range of parameters
- WebSupervisor – AirGate compatible with GSM/GPS localization and Geofencing of supervised machines available

Features

- Engine measurement by sensors and actuators or via J1939
- 8 binary inputs
- 4 binary outputs
- 11 configurable analog inputs
- 2 impulse inputs
- 1 frequency input for RPM measurement
- LED status indication
- Communication interface: RS485, 2xCAN, J1939
- Operating temperature: -40 to +70°C
- Integral fuel consumption measuring
- Operator log-in possibility
- Memory size up to 220.000 records
- Supported download formats: xls, csv
- Dust and water protection IP67
- Internal GPS and GSM modem (option)

Accessories and PC tools

- | | | | |
|----------------------------|---------------|-------------------------|---------------|
| ● ID-Mobile GPRS | see web pages | ● ID-Display D13-V | see web pages |
| ● ID-Mobile GPS | see web pages | ● WinScope | see page 72 |
| ● ID-Mobile GSM | see web pages | ● WebSupervisor | see page 73 |
| ● ID-Mobile Logger Harness | see web pages | ● DriveMonitor | see page 77 |
| ● Antenna | see web pages | ● DriveConfig | see page 77 |
| ● InteliVision 5 CAN | see page 59 | ● Logger History Export | see web pages |
| ● InteliVision 8 | see page 60 | ● InteliSupervisor | see web pages |
| ● ID-Display 2600 | see web pages | | |

TYPICAL APPLICATION:

Dump Truck – Data Logging

see page 113

Bifuel Products



InteliBifuel 2, InteliBifuel 20

BI-FUEL/DUAL-FUEL CONTROL SYSTEM PACKAGE

The InteliBifuel 2 and InteliBifuel 20 control system packages from ComAp are a comprehensive Bifuel (dual-fuel) control solution for all diesel powered engines.

The two packages share a range of common features with the option of being used with any engine:

- InteliBifuel 2 (up to 6 cylinders in line)
- InteliBifuel 20 (engines above 6 cylinders)

Both control packages feature:

- InteliBifuel CU – a highly configurable expandable Bifuel control unit with built-in PLC functions
- InteliBifuel DENOX – an anti-knocking system with multiple channels (2 for InteliBifuel 2 or 20 for InteliBifuel 20)
- InteliBifuel DFM – a Dual Fuel Module for fuel control and monitoring
- Software/firmware and documentation

The control modules can be fully integrated via CAN bus. Key parameters from all modules are accessible via the main display on InteliBifuel CU.

All key algorithms are field proven on many installations:

- The gas throttle valve control algorithm automatically increases and decreases the gas quantity dynamically across the engine loading range without any requirement for manual or regular adjustment from the operator, this feature ensures maximization of the gas usage safely.
- Knocking and misfiring detections protect the engine from any damage when the possibility of the gas quality exceeding the expected limits, or should combustion become unreliable due to an engine defect.

TYPICAL APPLICATION:

Gen-set with Bifuel

see page 116

Benefits

- Diesel Fuel savings – substitute up to 80% of diesel consumption with gas
- Extending run times without refueling
- Possible emission reductions compared to original 100% diesel operation:
 - CO₂
 - NO_x
 - SO_x
 - Particulate emissions
- Fuel flexibility and smooth transition between diesel and Bifuel operations
- Fully automatic and dynamic solution mainly concerned with engine safety and the safe control and modulation of the gas quantity to maximize the substituted gas
- Fully integrated system – all parts and parameters are monitored and accessible from a single point
- Solution for various types of gases – natural gas, well gas, landfill gas, coal gas, propane gas, biogas and others
- Excellent remote monitoring features backed by sophisticated PC programs which are especially suited for fleet owners

Elements of the system



InteliBifuel CU

The InteliBifuel CU is the highly flexible main control unit of the ComAp fully featured InteliBifuel solution. This sophisticated Bifuel (dual fuel) controller has outstanding monitoring, protection and control features including allocation for J1939 or sensors or used for the conversion of any type of diesel engine to Bifuel operation.

The InteliBifuel CU protects the engine during Bifuel operation by controlling the gas throttle valve and gas shut off safety solenoid valves, preventing the engine from exceeding any critical safety parameters.

This advanced controller is designed to communicate through both standard and proprietary CAN J1939 communication protocols to a wide range of EFI engines including: Caterpillar, Cummins, Detroit Diesel, Deutz, GM, Isuzu, Iveco, John Deere, MAN, MTU, Perkins, Scania, Sisu, Volvo Penta and others.

Designed to be highly flexible and versatile, the extended InteliBifuel product family offers a range of engine specific versions suitable for any type of Bifuel application. Tailored control requirements for specific applications can be met by means of available additional modules which offer multiple input and output configurations and possibilities.

A set of PLC (analog and binary) functions enable the customer to control and regulate any additional components and functions as may be required.

Benefits:

- Integrated solution with hardwired safety functions – less wiring and components
- Full communication support of engines with ECU – simpler wiring, access to information from ECU via Modbus
- Event driven History recording, easy backtracking and problem solving
- Load sharing for propulsion engines – better power utilization of installed engines
- Slave panels available – economical solution for remote control
- Integrated clutch control – less wiring and components
- Many types of communication – easy supervision and servicing
- Perfect price/performance ratio
- Built-in PLC-integrated control of technology



Features:

- Bifuel system monitoring and engine protection
- 14 binary inputs, 14 binary outputs, 8 analog inputs
- RS232/Modem/Modbus/Internet communication
- Engine measurement from sensors or via J1939
- Input/output and J1939 configuration
- Bifuel running hour meter
- Graphic back-lit LCD display with icons and bar graphs
- Sealed membrane panel to IP65
- 180x120 mm front panel mounted case
- Operating temperature:
 - -20 to +70 °C regular unit
 - -40 to +70 °C low temperature unit
- 3 level password protection
- IntelliBifuel CU controller meets several forcing counter standards (EN, UL, CSA, NFPA)
- Internal – configurable PLC functions

Configurable PLC functions

- Logical functions: AND, OR, XOR, RS
- Comparators with delay or with hysteresis
- Analog switch from two inputs to one output
- Mathematical functions: ADD, SUB, MAX, MIN, AVG
- Linear interpolation, moving average
- PID loops with analog or binary outputs
- Counters, Timers, Delay functions
- History and protection forcing
- Ramp Up/Down, Inc/Dec, Jump
- Programmable switches and others

Relay board I-RB8 / I-RB16

- 8 or 16 relays for IntelliBifuel CU (ID-RPU) binary outputs separation
- Each channel has both n.o. and n.c. contacts available
- LED state indication

Extension modules and rem. display possibilities

- up to 4x IGL-RA15 see page 71
- up to 4x IGS-PTM see page 71
- up to 4x IS-AIN8 see page 71
- up to 3x IS-BIN16/8 see page 71
- up to 1x I-AOUT8 see web pages
- up to 2x I-RD-CAN see web pages

Communication modules and PC tools

- InternetBridge-NT see page 71
- I-CB see page 71
- WinScope see page 72
- DriveMonitor see page 77
- DriveConfig see page 77
- I-LB+ see web pages

Communication interface ID-COM

- Multi-controller and/or Remote display and InternetBridge-NT and/or I-LB+ (Local Bridge)



IntelliBifuel DENOX 2

- Anti knocking device
- Field proven solution for knocking detection
- Integration with IntelliBifuel CU controller via Analog and Binary outputs
- Parameters for adjustment accessible via DenEdit software
- 2 monitoring channels
- Each channel can be configured for single cylinder or for the monitoring of neighbouring cylinders
- Suitable for all inline engines up to a maximum of 6 cylinders



IntelliBifuel DENOX 20

- Anti knocking device
- Field proven solution for knocking detection
- Integration with IntelliBifuel CU controller via Analog and Binary outputs
- Parameters for adjustment accessible via DenEdit software
- Up to 20 monitoring channels
- Each channel can be configured for single cylinder monitoring up to 20 cylinders
- Suitable for engine up 20 cylinders



IntelliBifuel DFM

- Dual-Fuel Module – interface unit for IntelliBifuel CU controller with Speed governor and Diesel actuator
- Gas throttle valve servo control loop
- Diesel consumption measurement via current loop

Mexico

Ottomotores

Ottomotores is one of the largest genset packagers in Mexico and South America.

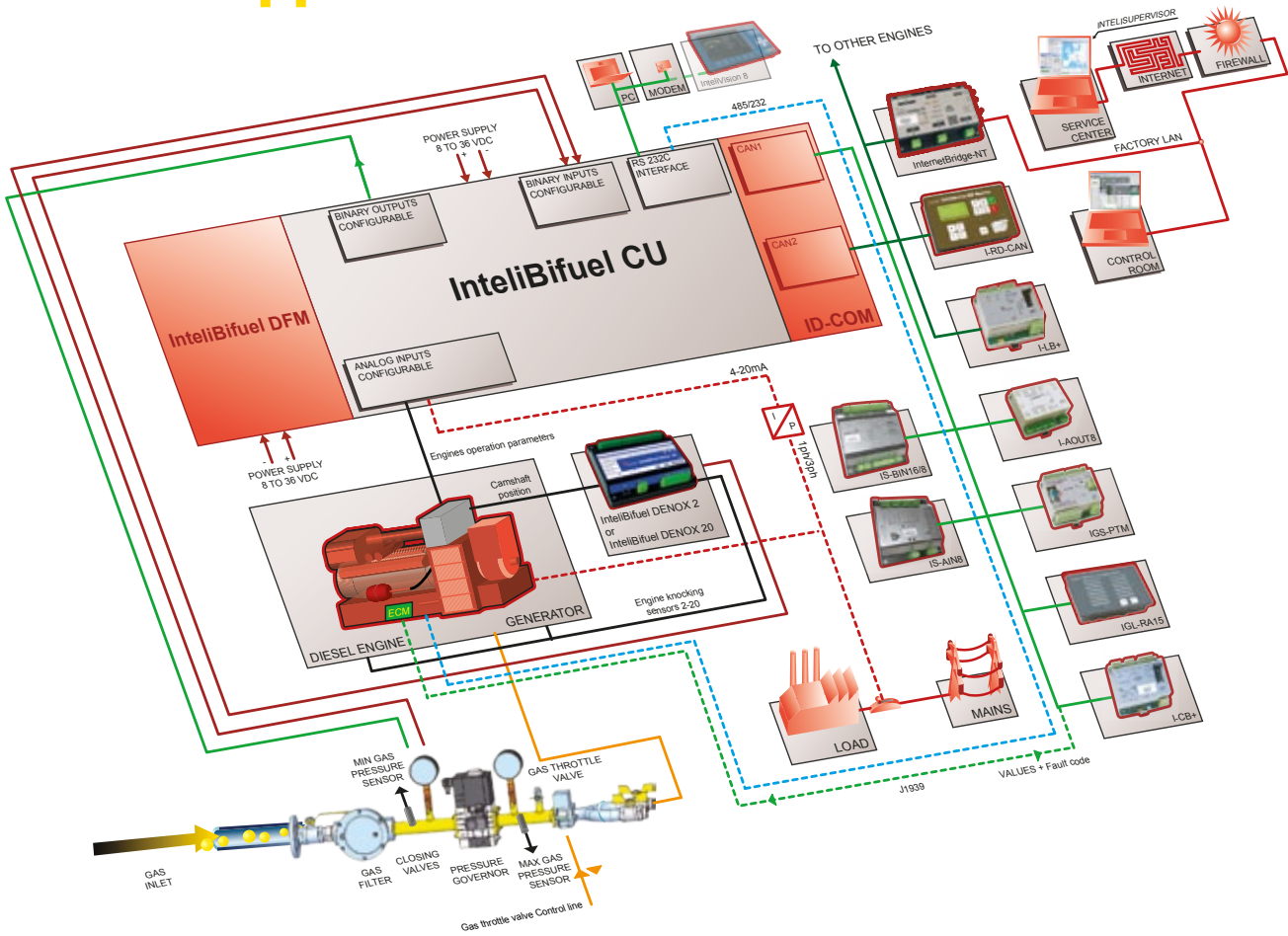
Since introduction of ComAp Bi-fuel system few years ago, Ottomotores has successfully integrated the IntelliBifuel solution into their product portfolio and started to offer Bi-fuel range of gensets with IntelliBifuel as a standard product.

ComAp has carried out multiple projects with Ottomotores in 2012 with following engines: Perkins 2806, 2206; Cummins QSK60-G6, QST30-G4.

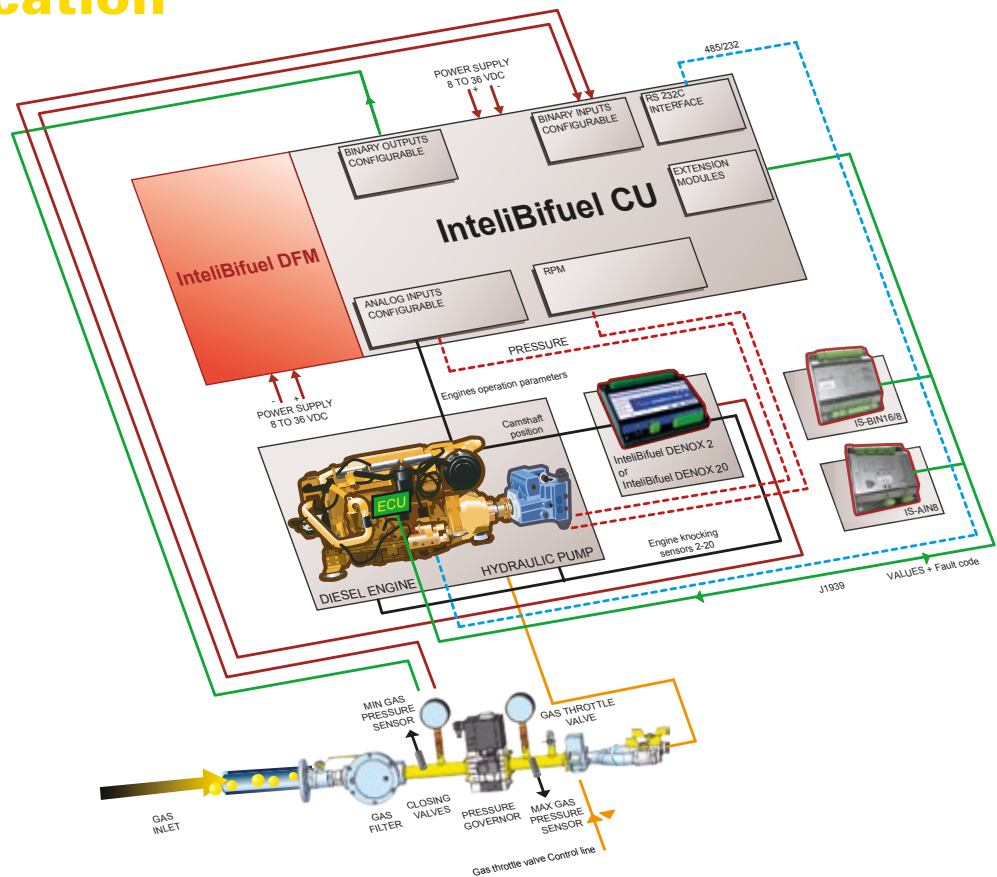




Gen-set application



Pump application



Associated Products



58

Accessories

72

PC tools

78

Battery chargers

78

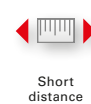
Electronic potentiometers

InteliVision 5

NEW GENERATION 5,7" COLOUR DISPLAY UNIT

New generation colour display panel for localized visualisation and intended for shorter distances (up to 2 meters) from the controller.

InteliVision 5 is compatible with the following product line of controllers: InteliGen^{NT}, InteliSys^{NT} and InteliMains^{NT}.



- 5,7" colour TFT display with 320x240 pixel resolution
- Local display intended for shorter distances (up to 2 meters) from the controller
- Plug and play operation (auto configuration based on controller application)
- Direct connection to the controller (converters are not needed)
- Simple, fast and intuitive control
- Easy drag and drop screen configuration in graphical editor
- Five active buttons – fast access to important data
- Configurable active buttons
- Support of Tiers 4 icons
- Mounting screw available at the rear face of InteliVision 5 to mount a compatible controller
- Same language support as the controller including graphic languages
- Communication connection via RS485
- Same cut out as InteliGen^{NT}
- Operating temperature: -40 to +70°C
- Face is sealed to IP65
- EMC, climatic and mechanical tests
- CE, UL certification

TYPICAL APPLICATION:

Rental sets

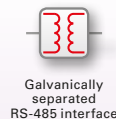
see page 88

InteliVision 5 RD

NEW GENERATION 5,7" REMOTE COLOUR DISPLAY UNIT

New generation colour panel for remote visualisation and intended for longer distances (up to 1000 meters) from the controller.

InteliVision 5 RD is compatible with the following product line of controllers: InteliGen^{NT}, InteliSys^{NT} and InteliMains^{NT}.



In addition to InteliVision 5's specification, the InteliVision 5 RD model also has:

- Galvanic separation of RS485
- Backlit buttons
- Equipped with internal buzzer
- Binary output for external horn/buzzer control
- Analog input to control backlit intensity



InteliVision 5 CAN

NEW GENERATION 5,7" COLOUR DISPLAY UNIT WITH CAN BUS INTERFACE

New generation remote display unit for InteliDrive DCU and InteliDrive Mobile controllers.

Designed as a simple, easy-to-use Plug and Play solution. Simpler, faster and more comfortable control for the user. More information in less time.



Galvanically separated CAN interface



Plug and play interface



Front&Rear IP65



Screen editor



Backlit dimming analog input



Horn Binary Output



Internal buzzer



Tier 4

- 5,7" colour TFT display, 320x240 pixel resolution, anti-glare front coating
- Same cut out as standard ComAp controllers, e.g. InteliDrive DCU
- Auto configuration based on controller application
- Same language support as the master controller including graphic languages
- Active buttons – fast access to important data
- Customer screen configuration
- Galvanically separated CAN interface
- Binary output for horn/buzzer control
- Sealed to IP65
- 8-pins Harness connection on rear side
- Drag & Drop customer screen configuration
- Analog input to control display backlit intensity

TYPICAL APPLICATION:

Forwarder

see page 112

InteliVision 5 CAN Backlit

NEW GENERATION 5,7" COLOUR DISPLAY UNIT WITH CAN BUS INTERFACE AND BACKLIT BUTTONS

New generation remote display unit for InteliDrive DCU, InteliDrive Mobile, InteliGen^{NT} and InteliSys^{NT} marine certified controllers and controllers with installed GeCon software.

Designed as a simple, easy-to-use Plug and Play solution. Simpler, faster and more comfortable control for the user. More information in less time.



Galvanically separated CAN interface



Plug and play interface



Front&Rear IP65



Screen editor



Backlit dimming analog input



Binary output



Internal buzzer



Backlit



Tier 4

TYPICAL APPLICATION:

Ship power management system

see page 102

In addition to InteliVision 5 CAN's specification, the InteliVision 5 CAN Backlit model also has:

- Backlit buttons

InteliVision 8

8" COLOUR DETACHABLE DISPLAY UNIT

InteliVision 8 is a colour display unit designed as a simple, easy-to-use Plug and Play solution and delivers high visibility of all engine data, monitoring information and trend history in a bright, colorful and forward looking design. It can be used for either InteliGen^{NT}, InteliSys^{NT}, InteliMains^{NT}, InteliDrive DCU and InteliDrive Mobile.

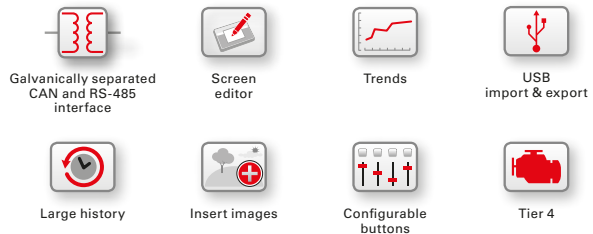
InteliVision 8 comes with the large high-resolution colour TFT display, which helps visibility and definition of onscreen information. The control interface has user-friendly, intuitive active buttons – giving users access to more information in less time. InteliVision 8 boasts the unique TRENDS monitoring as a standard feature, helping you evaluate past events easily on one screen. It offers a site data storage using a USB stick and permits adding external pictures for customization of screens.

InteliVision 8 includes ComAp's standard communication interface using RS232/485 and CAN bus communication. Designed to be mounted in both monitoring and engine room, InteliVision 8 gives complete access to all control functions when connected to control unit.

TYPICAL APPLICATION:

Standby system with load shedding – advanced displays

see page 90



- 8" colour TFT display with resolution of 800 x 600 pixels
- Controlled by active buttons
- Comes with new TRENDS monitoring screen
- USB flash disk as file storage (export trends, history, firmware and archive to USB flash disk)
- Quick auto login with USB stick
- User's pictures import to measurement screens
- Easy Drag & Drop screen configuration by customer in new graphical Editor
- Configurable soft keys buttons
- Support of Tier 4 icons
- Allows full monitoring of one controller (in case of more controllers on CAN it is possible to switch over among controllers monitoring by change of CAN address)
- Connection via of RS232/485 and CAN bus
- Auto configuration based on controller application
- Designed to be mounted in both monitoring and engine room
- Operating temperature from -20 to +70° C
- CE, UL and ULC certification
- Sealed to IP65
- Adaptive and color alarm list

InteliVision 8 Marine

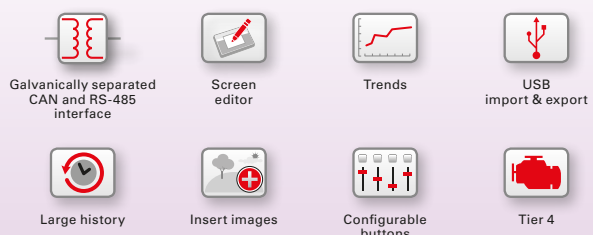
MARINE APPROVED 8" COLOUR DETACHABLE DISPLAY UNIT

InteliVision 8 Marine is a marine certified colour display unit for either InteliGen^{NT}, InteliSys^{NT}, InteliMains^{NT} or InteliDrive DCU and InteliDrive Mobile controllers. It is designed as a simple, easy-to-use Plug and Play solution.

TYPICAL APPLICATION:

Ship power management system

see page 102



The InteliVision 8 Marine has all the same features as InteliVision 8 and has GL marine certification.



InteliVision 17Touch

COLOUR TOUCH 17" DISPLAY

InteliVision 17Touch is designed for the complete monitoring and control of multiple controllers or complex installation, with large numbers of measured values (CHP). Optimized for ease of use, installation and configuration, the touch screen enables users to create touch buttons linked to another screens, with the option of directly controlling gen-sets or breakers.

InteliVision 17Touch can communicate via standard interfaces such as RS232, RS485, Ethernet & USB.

The display comes with PC SCADA software enabling the users to configure freely their screen with different types of items like meters, bargraphs, numeric values, control buttons, pictures etc. The software enables users to check the history of multiple controllers and change Setpoints from one place.

InteliVision 17Touch is designed to mount into a panel in power distribution room or on the wall using VESA standard (option).



- Big screen with high resolution for more data on one screen
- Control via touch screen
- Multiple controllers monitoring
- Change the Mode of any connected controller
- Start/Stop any connected gen-set manually
- Control/monitor all GCBs/MCBs controlled by ComAp controllers
- Setpoints change from one place
- History logs from all controllers
- Full screen mode/configuration mode
- Possibility to lock full screen mode by PIN
- On-screen keyboard for entering values

TYPICAL APPLICATION:

Combined heat and power (CHP) – cogeneration

see page 94

Finland

Meriaura Ltd



Specialist deep sea cable laying vessel, the MV Aura, has been refurbished to enhance its ability to perform its demanding duties installing subsea energy cable for renewable energy projects at sea.

Meriaura Ltd, the owner of MV Aura, is a Finnish shipping company specialising in demanding cargo projects and transporting industrial bulk and raw materials. For its work in support of renewable energy projects MV Aura is part of its fleet of Cable laying vessels covering both deep water and shallow water cable laying and trenching capabilities.

The ships' systems has been fitted with a dynamic positioning system and two additional bow thrusters, two new diesel engines, deck cranes and also accommodation block with capability of housing up to 36 people. This modern and environmentally friendly vessel is designed to operate globally and can be utilised for various tasks including transport of demanding project cargo such as offshore wind farm structures. As its area of deployment includes the Baltic Sea area, the vessel is also capable of operating as an Icebreaker giving it year round capability to perform its duties. This wide scope of capability is further enhanced into an environmental protection role; MV Aura is also capable of operating in oil spill response activities. The main engines of the vessel can use environmentally friendly bio oil as fuel.

The scale of the refurbishment means that MV Aura has much greater demands for electricity than originally designed, so this area of the vessel was also significantly upgraded and Tapimec Oy (the official ComAp distributor in Finland) was pleased to be able to supply the system which powered it all.

Machinery Oy supplied three gen-sets in shipping containers, one switchboard container and one fuel container. In each gen-set container there is one 60L Cummins Marine diesel generator, a QSK60-D (with a power rating of 2095HP in Prime use) and one PI734G2 Stamford generator. Each container has a power output of 1800 kVA. In a normal situation, two gensets are running and the third is on stand-by. There is also a mode for load shedding.

IL-NT GPRS

INTEGRATED GSM MODEM AND INTERNET GPRS

IL-NT GPRS is an integrated GSM modem and Internet GPRS solution for IntelliLite^{NT} and IntelliATS^{NT} controllers. It offers a unique solution for wireless monitoring and control over single or whole fleet of equipment. The main benefits include high reliability for your application, instant alarm events notification over SMS, on-line data access on Internet (using WebSupervisor), periodic data collecting in Excel format and SMS control.

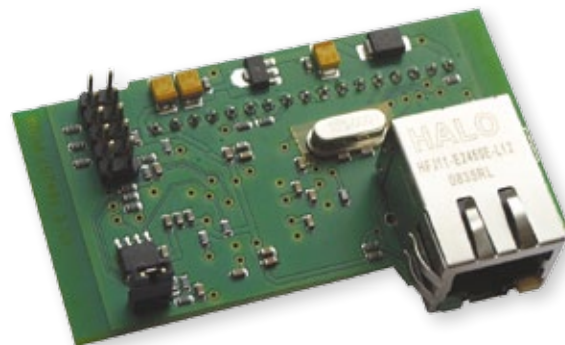


- Wireless integrated solution
- Quick & easy installation
- Brings enhanced application reliability
- Support of WebSupervisor – on-line web based system monitoring & control
- Periodic data collection in Excel format
- Instant alarm SMS notification
- System control over SMS
- GSM modem
- GPRS modem
- Quad Band 850/900/1800/1900 MHz
- GPRS multi-slot class 10
- CSD up to 14.4 kbps
- TCP/IP communication over GPRS
- Excellent price/performance ratio

IB-Lite

INTERNET / ETHERNET MODULE INCLUDING WEB SERVER

The IB-Lite module is a plug-in communication module with ethernet interface developed for IntelliLite^{NT} and IntelliATS^{NT}. Ethernet interface allows fast remote connection of LiteEdit or IntelliMonitor to the controller from all the world through the Internet network, whereas all functions work the same way as when connected through a serial cable. The module also allows the controller to be integrated into a building management system using the Modbus/SNMP/TCP protocol. Simple web-based interface will allow basic monitoring and adjustment even those, who do not have LiteEdit or IntelliMonitor, just using their web browsers.

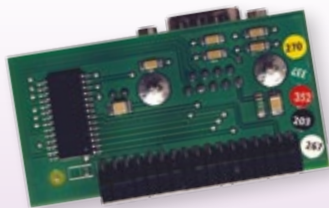


- 10/100 MBit ethernet interface in RJ45 socket
- Web interface for basic monitoring and adjustment of the controller
- ComAp/TCP protocol for remote access from LiteEdit or IntelliMonitor
- MODBUS/TCP, SNMP protocols for integration of the controller into building management systems or other remote monitoring purposes
- Sending of active e-mails
- Web-based configuration and firmware update of the module
- Simply connected using AirGate technology



IL-NT RS232

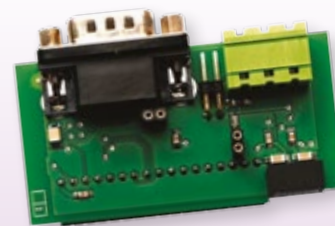
RS232 EXTENSION BOARD



- Detachable plug-in module
- RS232 interface
- Analog/GSM modem, Modbus support

IL-NT RS232-485

DUAL PORT EXTENSION BOARD



- Detachable plug-in module
- RS232 and RS485 interfaces
- Analog/GSM modem, Modbus, ECU link support

IL-NT S-USB

SERVICE USB MODULE



- Detachable easily plug-in/plug-out module
- USB interface
- For service purposes

IL-NT AOUT8

ANALOG OUTPUTS FOR PWM GAUGES MODULE



- 8 programmable analog PWM outputs
- Resolution 10 bits
- For indication of almost every measured and computed value
- May indicate output power, RPM, voltage, current, etc.
- Support VDO style gauges

IL-NT BIO8

BINARY INPUT/OUTPUT MODULE



- Detachable plug-in module
- 8 binary inputs or outputs
- Arbitrary combination of inputs/outputs

IGL-RA15¹⁾

REMOTE ANNUNCIATOR



- 15 programmable LEDs with configurable colors either red, green or yellow
- Customizable labels
- Local horn output with adjustable alarm period
- Lamp test function
- Connection via CAN bus

IC-NT CT-BIO7¹⁾

HYBRID CURRENT INPUT & BINARY INPUT/OUTPUT EXTENSION MODULE



- Hybrid current input & binary input/output module
- One additional AC current (CT) measuring input for Earth Fault Current protection
- Up to 7 configurable additional binary inputs or outputs

IG-IOM¹⁾

ANALOG/BINARY INPUT/OUTPUT MODULE



- 8 configurable binary inputs and 8 configurable binary open collector outputs
- 4 configurable analog inputs and 1 analog output
- LEDs indicate the state of binary input/output
- Connection to the controller with IOM cable (2 meters)
- Resistance range 0–2400 Ohm
- Analog outputs 0–20 mA

¹⁾This module is not compatible with IntelIATS^{NT}.

IL-NT GPRS

INTEGRATED GSM MODEM AND INTERNET GPRS

IL-NT GPRS is an integrated GSM modem and Internet GPRS solution for IntelliCompact^{NT} and MainsCompact^{NT} controllers. It offers a unique solution for wireless monitoring and control over single or whole fleet of equipment. The main benefits include high reliability for your application, instant alarm events notification over SMS, on-line data access on Internet (using WebSupervisor), periodic data collecting in Excel format and SMS control.

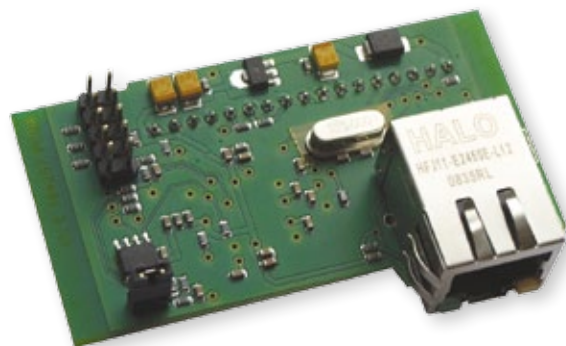


- GSM Modem function for dial-up connection
- GPRS support for wireless internet connection
- WebSupervisor system support for web based monitoring and control of one or multiple controllers at the same time
- AirGate technology support for easy connection over GPRS, overcomes many of the issues traditionally experienced with internet connection to embedded systems
- Locate support – gen-set/engine locating on map in WebSupervisor, tracking of movement
- Remote access from LiteEdit or IntelliMonitor
- Mobile and wireless solution
- Automatic SMS message on alarms or events
- SMS control of gen-set/engine – available at some controllers

IB-Lite

INTERNET / ETHERNET MODULE INCLUDING WEB SERVER

The IB-Lite module is a plug-in communication module with ethernet interface developed for IntelliCompact^{NT} and MainsCompact^{NT}. Ethernet interface allows fast remote connection of LiteEdit or IntelliMonitor to the controller from all the world through the Internet network, whereas all functions work the same way as when connected through a serial cable. The module also allows the controller to be integrated into a building management system using the Modbus/SNMP/TCP protocol. Simple web-based interface will allow basic monitoring and adjustment even those, who do not have LiteEdit or IntelliMonitor, just using their web browsers.



- 10/100 MBit ethernet interface in RJ45 socket
- Web interface for basic monitoring and adjustment of the controller
- ComAp/TCP protocol for remote access from LiteEdit or IntelliMonitor
- MODBUS/TCP, SNMP protocols for integration of the controller into building management systems or other remote monitoring purposes
- Sending of active e-mails
- Web-based configuration and firmware update of the module
- Simply connected using AirGate technology



IC-NT CT-BIO7

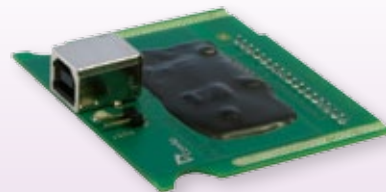
HYBRID CURRENT INPUT & BINARY INPUT/OUTPUT EXTENSION MODULE



- Hybrid current input & binary input/output module
- Applicable to IntelliCompact^{NT} SPtM version 1.2 and higher
- Applicable to IntelliCompact^{NT} MINT version 1.3 and higher
- One additional AC current (CT) measuring input for Earth Fault Current protection or Peak Load Shaving function (IntelliCompact^{NT} SPtM only)
- Up to 7 configurable additional binary inputs or outputs

IL-NT S-USB

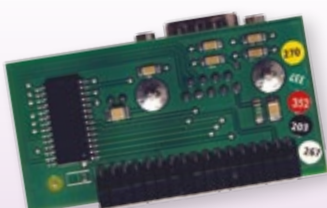
SERVICE USB MODULE



- Detachable easily plug-in/plug-out module
- USB interface
- For service purposes

IL-NT RS232

RS232 EXTENSION BOARD



- Detachable plug-in module
- RS232 interface
- Analog/GSM modem, Modbus support

IL-NT AOUT8

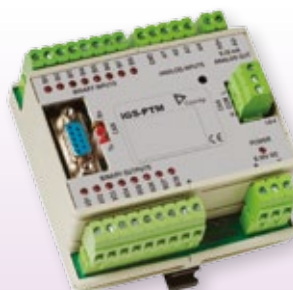
ANALOG OUTPUTS FOR PWM GAUGES MODULE



- 8 programmable analog PWM outputs
- Resolution 10 bits
- For indication of almost every measured and computed value
- May indicate output power, RPM, voltage, current, etc.
- Support VDO style gauges

IGS-PTM

ANALOG/BINARY INPUT/OUTPUT MODULE



- 8 configurable binary inputs and 8 configurable binary open collector outputs
- 4 configurable analog inputs and 1 analog output
- LEDs indicate the state of binary input/output
- Measures the values from Pt100 and Ni100 sensors
- Analog inputs have the resistance range 0–250 Ohm, voltage range 0–100 mV, current range 0–20 mA – selectable via jumper
- Analog output 0–20 mA
- Connection via CAN bus

IG-AVRi¹⁾

AVR INTERFACE



- Interface ensuring voltage matching between IntelliGen^{NT} or IntelliSys^{NT} controller and generator AVR
- 4 kV electric insulation between controller and AVR
- DIN rail design

IGL-RA15

REMOTE ANNUNCIATOR



- 15 programmable LEDs with configurable colors either red, green or yellow
- Customizable labels
- Local horn output with adjustable alarm period
- Lamp test function
- Connection via CAN bus

InternetBridge-NT

COMMUNICATION MODULE WITH CELLULAR/ETHERNET CONNECTION



- Wireless high speed GPRS/UMTS modem built in
- Supports all cellular packet data systems from GPRS to HSPA (2.5G to 3.75G)
- Full Multiband support – modem works globally
- Ethernet wired connection for local LAN connection
- Single module can be used for multiple controllers on the same site (connected via CAN or RS485)
- MODBUS/TCP, SNMP protocol support – direct connection to building management and other systems



¹⁾This module is not compatible with MainsCompact^{NT}.

InternetBridge-NT

COMMUNICATION MODULE WITH CELLULAR/ETHERNET CONNECTION

The InternetBridge-NT module allows efficient connection to the internet for one or more ComAp controllers, either by Ethernet cable or by built in 3.75G Cellular modem.

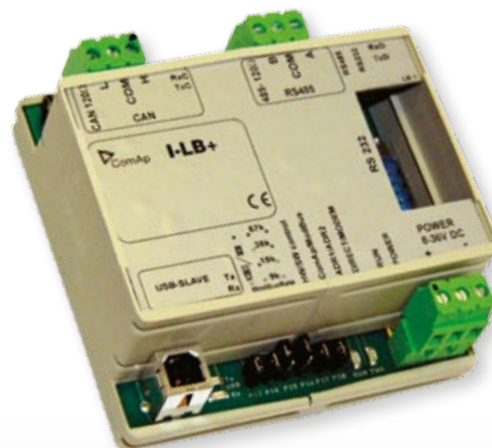


- Wireless high speed GPRS/UMTS modem built in
- Supports all cellular packet data systems from GPRS to HSPA (2.5G to 3.75G)
- Full Multiband support – modem works globally
- Ethernet wired connection for local LAN connection
- Single module can be used for multiple controllers on the same site (connected via CAN or RS485)
- MODBUS/TCP, SNMP protocol support – direct connection to building management and other systems
- Includes ComAp AirGate technology – easy plug-and-play connection anywhere (no fixed IP needed)
- Designed for WebSupervisor – fully supported by ComAp’s web based remote monitoring system
- Global positioning system built in – keep track of your equipment
- Durable metal housing with DIN rail mount
- SIM card holder access without disassembly
- Web server for monitoring and adjustment of attached controllers
- Wide range 8–36 VDC supply voltage
- Works with ComAp monitoring software in either direct connection or via AirGate technology

I-LB+

LOCAL BRIDGE

I-LB+ is a bridge for applications with IntelliGen^{NT}, IntelliSys^{NT} and IntelliMains^{NT} controllers for local or remote monitoring and control.



- Direct, modem or USB connection to multiple controllers
- RS232/ RS485/Modbus support for direct connection
- Analog/ GSM/ISDN modem support



IS-AIN8

ANALOG INPUT MODULE

- 8 configurable analog inputs
- Precision of inputs is 1 %
- Accepts 2 or 3 wire resistive, current and voltage measurement
- User and predefined sensor characteristics (Pt100, Pt1000, Ni100, Ni1000, thermocouple type J/K/L, 0/4–20 mA, 0–10 V, etc.)
- Up to 10 units can be connected to 1 controller

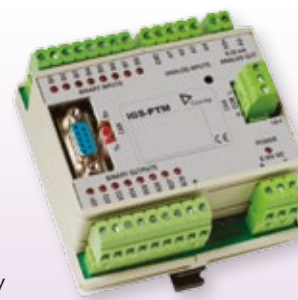


IS-AIN8TC – Module for Thermocouple Measurement available

IGS-PTM

ANALOG/BINARY INPUT/OUTPUT MODULE

- 8 configurable binary inputs and 8 configurable binary open collector outputs
- 4 configurable analog inputs and 1 analog output
- LEDs indicate the state of binary input/output
- Analog output 0–20 mA
- Connection via CAN bus
- Up to 4 units can be connected to 1 controller
- Analog inputs have the resistance range 0–250 Ohm, voltage range 0–100 mV, current range 0–20 mA – selectable via jumper



IS-BIN16/8

BINARY INPUT/OUTPUT MODULE

- 16 configurable galvanically separated inputs
- 8 configurable N.O. or N.C. relays outputs
- LEDs indicate the state of binary input/output
- Up to 6 units can be connected to 1 controller



I-AOUT8

ANALOG OUTPUT EXTENSION MODULE

- 8 configurable analog outputs
- Outputs are configurable to: 0–10 VDC or 0/4–20 mA range or (1,2 kHz) PWM
- Up to 4 units can be connected to 1 controller



I-CB

ECU COMMUNICATION BRIDGE

- Interfaces ComAp controller to electronically controlled engines with non standard communication protocol
- Available for CAT DIESEL, CAT GAS, MTU MDEC, DEUTZ TEM and others
- Enable to use the by default mounted sensors
- Prepared default configuration for easy start-up



NT-Converter

LOAD SHARING INTERFACE MODULE

- Connection of IntelliGen^{NT} / IntelliSys^{NT} to an existing system consisting of IntelliGen / IntelliSys controllers (first generation)
- Active load sharing among the ComAp controllers and third-party gen-set controllers
- Installation with NT-Converter and IntelliGen^{NT} / IntelliSys^{NT} and IntelliGen / IntelliSys can be monitoring via IG-IB, InternetBridge-NT or I-LB+



I-CR

CAN REPEATER MODULE

- Intercontroller CAN bus extension (one or more I-CR modules can be used)
- Intercontroller CAN bus bus-tie bridging – makes groups of controllers in segments A and B „invisible“ to each other depending on bus-tie breaker state, keeping the PC communication in function for all controllers
- Peripheral CAN bus extension



IGL-RA15

REMOTE ANNUNCIATOR

- 15 programmable LEDs with configurable colors either red, green or yellow
- Customizable labels
- Local horn output with adjustable alarm period
- Lamp test function
- Connection via CAN bus
- Up to 4 units can be connected to 1 controller



IL-NT GPRS

INTEGRATED GSM MODEM AND INTERNET GPRS

IL-NT GPRS is an integrated GSM modem and Internet GPRS solution for IntelliDrive Lite controllers. It offers a unique solution for wireless monitoring and control over single or whole fleet of equipment. The main benefits include high reliability for your application, instant alarm events notification over SMS, on-line data access on Internet (using WebSupervisor), periodic data collecting in Excel format and SMS control.

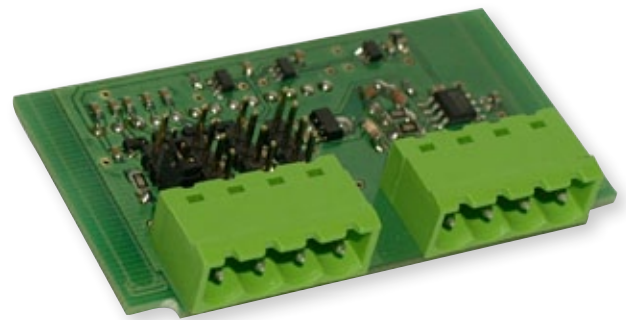


- GSM Modem function for dial-up connection
- GPRS support for wireless internet connection
- WebSupervisor system support for web based monitoring and control of one or multiple controllers at the same time
- AirGate technology support for easy connection over GPRS, overcomes many of the issues traditionally experienced with internet connection to embedded systems
- Locate support – gen-set/engine locating on map in WebSupervisor, tracking of movement
- Remote access from LiteEdit or IntelliMonitor
- Mobile and wireless solution
- Automatic SMS message on alarms or events
- SMS control of gen-set/engine – available at some controllers

IL-NT AIO

ANALOG INPUT/OUTPUT MODULE

IL-NT AIO is an extension board increasing the number of analog inputs and outputs of IntelliDrive Lite controllers.



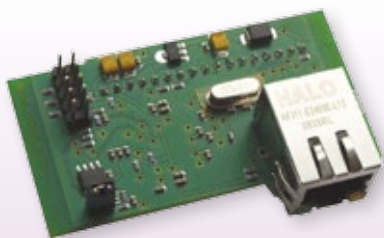
- Extension plug-in module increasing the number of analog inputs and output of selected engine controllers
- 4 configurable analog inputs for the sensors: in range 0–2400 ohm; 0/4–20 mA; 0–4 VDC
- 1 configurable analog output for the sensor: in range 0/4–20 mA; 0–4,5 VDC; PWM 5 V/500 Hz



IB-Lite

INTERNET / ETHERNET
MODULE INCLUDING
WEB SERVER

- 10/100 MBit ethernet interface in RJ45 socket
- Web interface for basic monitoring and adjustment of the controller
- ComAp/TCP protocol for remote access from LiteEdit or IntelliMonitor
- MODBUS/TCP, SNMP protocols for integration of the controller into building management systems or other remote monitoring purposes
- Sending of active e-mails



IL-NT RS232

RS232 EXTENSION BOARD

- Detachable plug-in module
- RS232 interface
- Analog/GSM modem, Modbus support



IL-NT S-USB

SERVICE USB MODULE

- Detachable easily plug-in/plug-out module
- USB interface
- For service purposes



IL-NT BIO8

BINARY INPUT/OUTPUT
MODULE

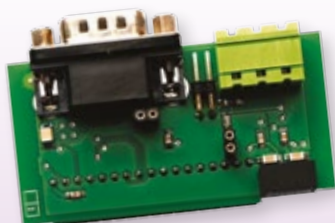
- Detachable plug-in module
- 8 binary inputs or outputs
- Arbitrary combination of inputs/outputs



IL-NT RS232-485

DUAL PORT
EXTENSION BOARD

- Detachable plug-in module
- RS232 and RS485 interfaces
- Analog/GSM modem, Modbus, ECU link support



IL-NT AOUT8

ANALOG OUTPUTS FOR PWM
GAUGES MODULE

- 8 programmable analog PWM outputs
- Resolution 10 bits
- For indication of almost every measured and computed value
- May indicate output power, RPM, voltage, current, etc.
- Support VDO style gauges



IGL-RA15

REMOTE ANNUNCIATOR

- 15 programmable LEDs with configurable colors either red, green or yellow
- Customizable labels
- Local horn output with adjustable alarm period
- Lamp test function
- Connection via CAN bus



IL-NT IO1

ANALOG OUTPUT AND BINARY
INPUT MODULE

- Extension plug-in module increasing the number of analog outputs and binary inputs of selected engine controllers
- 4 configurable analog outputs (output range: 0 to +VBatt ±1V)
- 4 configurable binary inputs



ID-RPU¹⁾

REDUNDANT PROTECTION UNIT

ID-RPU is a redundant engine protection unit for IntelliDrive DCU Marine controllers.



- Backup module for marine engines
- Automatic switchover between primary and secondary power supply
- Monitors function of main controller unit
- In case of main unit failure switches to the backup mode and protects the engine
- RPM input with hardwired overspeed protection
- 5 shutdown channels with Broken Wire detection
- Fuel and Stop solenoids with BW detection

ID-SCM²⁾

SPEED CONTROL MODULE

ID-SCM is an interface module for IntelliDrive DCU controllers for full support of internal PLC.



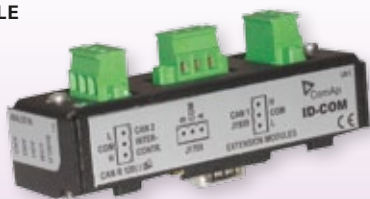
- RPM1, RPM2: Inputs for frequency measuring – up to 8 kHz
- IMP1, IMP2: Inputs for integral (consumption) measuring up to 60 Hz
- AOUT1, AOUT2: Analog outputs 0–10 VDC or 0–20 mA
- Speed Governor Output: 10 VDC or 10 VDC via 10 kΩ or PWM (1,6 kHz)
- The module is mounted directly on IntelliDrive DCU controller body

1) This module is only compatible with IntelliDrive DCU Marine controllers
 2) This module is only compatible with IntelliDrive DCU controllers



ID-COM

COMMUNICATION MODULE



- Interface for CAN1 Extension and J1939 modules
- Interface for CAN2 Inter-controller and I-RD-CAN modules
- Interface for J1708 redundancy line



IS-AIN8

ANALOG INPUT MODULE



- 8 configurable analog inputs
- Precision of inputs is 1 %
- Accepts 2 or 3 wire resistive, current and voltage measurement
- User and predefined sensor characteristics (Pt100, Pt1000, Ni100, Ni1000, thermocouple type J/K/L, 0/4–20 mA, 0–10 V, etc.)
- Up to 4 units can be connected to 1 controller



IS-AIN8TC – Module for Thermocouple Measurement available

InternetBridge-NT

COMMUNICATION MODULE WITH CELLULAR/ETHERNET CONNECTION

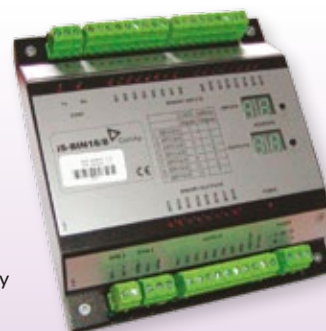


- Wireless high speed GPRS/UMTS modem built in
- Supports all cellular packet data systems from GPRS to HSPA (2.5G to 3.75G)
- Full Multiband support – modem works globally
- Ethernet wired connection for local LAN connection
- Single module can be used for multiple controllers on the same site (connected via CAN or RS485)
- MODBUS/TCP, SNMP protocol support – direct connection to building management and other systems



IS-BIN16/8

BINARY INPUT/OUTPUT MODULE



- 16 configurable galvanically separated inputs
- 8 configurable N.O. or N.C. relays outputs
- LEDs indicate the state of binary input/output
- Up to 4 units can be connected to 1 controller



I-CB

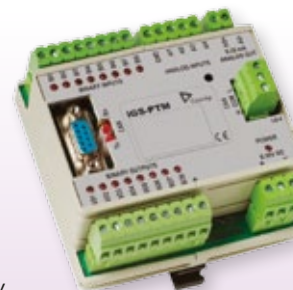
ECU COMMUNICATION BRIDGE



- Available for CAT DIESEL, CAT GAS, MTU MDEC, DEUTZ TEME
- Offers to read and display engine values as well as to control the engine by datalink
- Saves wiring and sensors as read data from existing already mounted sensors may be used for measuring to save sensors and wiring
- Prepared default configuration for easy start-up

IGS-PTM

ANALOG/BINARY INPUT/OUTPUT MODULE



- 8 configurable binary inputs and 8 configurable binary open collector outputs
- 4 configurable analog inputs and 1 analog output
- LEDs indicate the state of binary input/output
- Measures the values from Pt100 and Ni100 sensors
- Analog inputs have the resistance range 0–250 Ohm, voltage range 0–100 mV, current range 0–20 mA – selectable via jumper
- Up to 4 units can be connected to 1 controller



ID-SCM1²⁾

SPEED CONTROL MODULE



- ID-SCM1 represents cost effective version of ID-SCM
- The module is mounted directly on InteliDrive DCU controller body
- Analog output options:
 - 0 to 10 VDC
 - 0 to 10 VDC via 10 kΩ
 - PWM 5 V / 10 mA

IGL-RA15

REMOTE ANNUNCIATOR



- 15 programmable LEDs with configurable colors either red, green or yellow
- Customizable labels
- Local horn output with adjustable alarm period
- Lamp test function
- Connection via CAN bus
- Up to 4 units can be connected to 1 controller





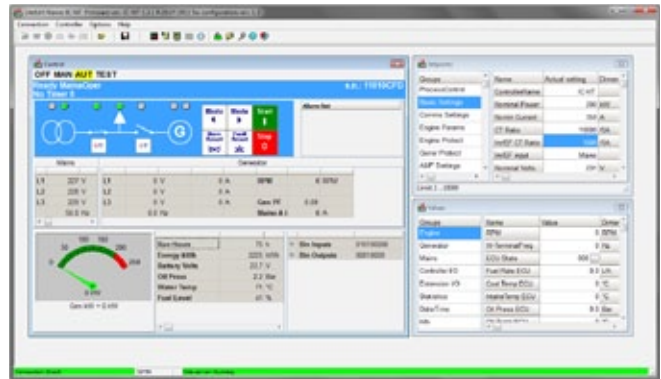
LiteEdit

PC CONFIGURATION AND MONITORING TOOL

LiteEdit is a PC configuration and monitoring tool for IntelliATS^{NT}, IntelliLite^{NT}, IntelliCompact^{NT}, MainsCompact^{NT}, IntelliDrive Lite and IntelliPro controllers.



Simply connected



- Remote control, monitoring and On-line/Off-line parameters adjustment
- Controller and extension modules configuration, programming and cloning
- Gen-set and ECU Alarm monitoring + complete real time history
- Power format and ECU units selection, password protection setting
- Controller text translation and language import wizard
- Editing of customized welcome text displayed on initial controller screen
- Direct (USB, RS232 or RS485), Modem, Internet, AirGate or off-line communication connection
- Support of electronic engines (values, alarms and commands)
- Configuration archive upgrading from older to newer software version
- Modbus or SNMP MIB tables generating



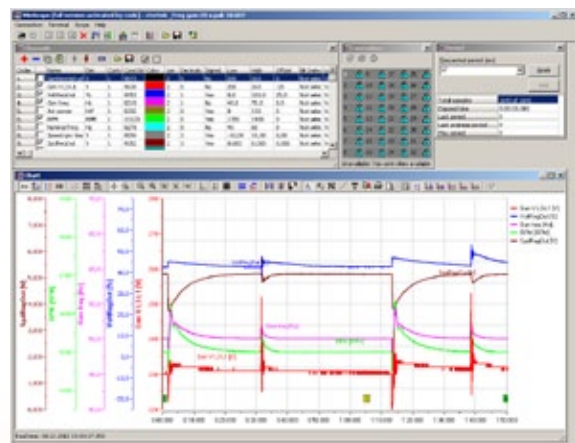
WinScope

SPECIAL GRAPHICAL CONTROLLERS' MONITORING SOFTWARE

WinScope is a high-performance PC tool, which is used for monitoring and archiving trends of the controllers' parameters and values.

It can be used for most ComAp controllers including ECON, INCON and EMCON5.

Basic WinScope version allows four channels on a single set and can be downloaded FREE from www.comap.cz



- Fast and convenient monitoring of the values' time behaviour
- Measures and displays great number of trends from all controllers connected via I-LB+ / IB-Lite / IG-IB / InternetBridge-NT or Ethernet connection
- Adjustable period (10–10000 ms)
- Easy choice of quantity from list
- Off-line mode for data analysis
- A large number of graphic functions
- Graph printing possibility
- Direct controller's setpoints change



WebSupervisor

CLOUD-BASED SYSTEM FOR MONITORING AND CONTROLLING OF COMAP CONTROLLERS

WebSupervisor is cloud-based system designed for monitoring and controlling ComAp controllers via the internet. This system offers a number of beneficial features that help optimize revenue for machinery fleets, as each piece of equipment can be individually monitored for all important operation values.

The system works when the controller sends regular updates to a remote secure server which then safely stores the information ready for users to view. Connection to the server is easily accessible to any registered user through an internet enabled device such as PC, netbook, tablet or even a smart-phone – enabling equipment monitoring at any time or place.

The flexible system provides a high level of security, with the central administrator able to determine users' access rights for specific equipment within the fleet as well as appropriate information. In addition, event generated e-mails can be created and sent to specific users to give fast and efficient notification to improve decision making or react to additional revenue generating opportunities.

WebSupervisor offers equipment owners a number of powerful reporting tools allowing monthly summaries of availability and revenue creation ensuring that maintenance scheduling and asset utilization can be maximized for individual equipment and the whole fleet. The information generated from each controller can be archived on the central server for future analysis and trend evaluation.

Watch how WebSupervisor can help you to protect your gen-set/engine online.



**AVAILABLE
IN VARIOUS LANGUAGES**




AirGate
Simply connected


LOCATE
Simply here

- Central controlling and monitoring of main values
- Overview of controllers on the map
- History charts of main values
- Reports for revenue stream support
- Secure offsite storage at dedicated data centre
- Smart equipment supervision—higher revenue and lower maintenance costs
- Easy to use, no special installations on PC required
- Customised report values in .xls format



Available on the
App Store

ANDROID APP ON
Google play



GenConfig

PC CONFIGURATION TOOL

GenConfig is an off-line PC configuration tool for IntelliGen^{NT}, IntelliSys^{NT} and IntelliMains^{NT} controller customizing.



Screen Editor

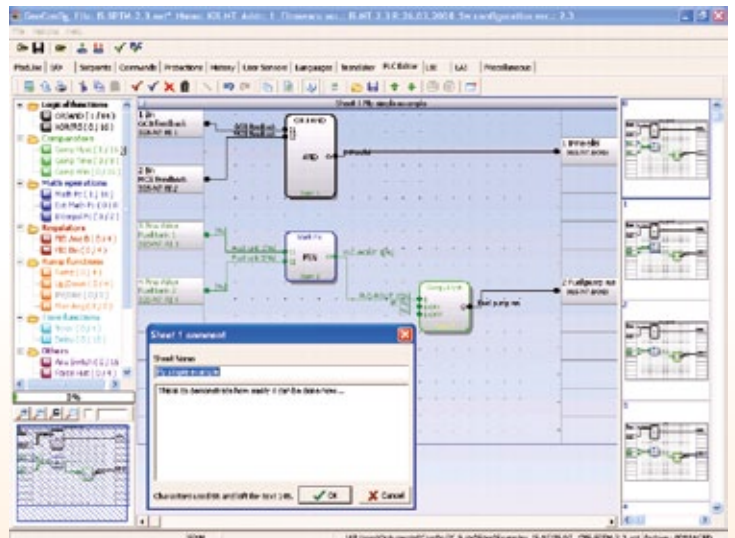


- Allows full configuration of the controller and its peripherals:
 - peripheral modules and ECU support
 - inputs/outputs
 - setpoints
 - commands
 - protections (for analog inputs/values)
 - PLC
 - history record
 - user sensors
 - languages
 - external display screen configuration
- Offers expert mode, consistency check and configuration cloning

PLC Editor

Part of GenConfig configuration tool for selected ComAp controllers

- PLC functions can be moved both horizontally and vertically
- Colour-coded and linked to relevant functions
- Blocks can be organized to reflect the real process flow
- Groups of blocks can be separated on each sheet to form sub-sets within the design
- Detailed descriptions of inputs and outputs come complete with useful hints
- Context help
- Block function description





ScreenEditor

Part of GenConfig configuration tool for selected ComAp controllers

ScreenEditor allows you to personalise the interface on IntelliVision 5 and IntelliVision 8 models of colour displays by managing information content of screens, creating of user screens, selecting instruments and creating backgrounds from a toolbox of graphical elements.

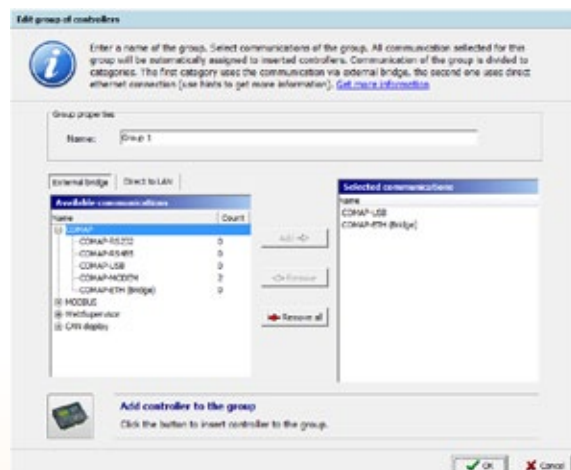
- Check screen content and layout before uploading – minimises corrections
- Prepare screens before site visit – reduces commissioning time
- Everyone can use it – no special knowledge required
- With IntelliVision 8 you can also import externally generated images – helping you brand screen displays



RemoteCommGuide

COMMUNICATION GUIDE FOR MOST COMAP GEN-SET CONTROLLERS

RemoteCommGuide is interactive communication guide for most ComAp gen-set controllers. It is a part of ComAp PC Suite. This useful tool helps you to easily select the proper gen-set controller according to required application and communications. RemoteCommGuide solves problem with projecting of communications and checks the wiring and settings during the commissioning.



- Easier finding of required information
- See only relevant information
- Automatically check the accessibility of required communications
- Wizard for first steps with RemoteCommGuide makes easier to understand the logic of SW
- Spare time of customer
- Make Remote communications more understandable
- Information about all controllers in one place together



InteliMonitor

PC MONITORING TOOL

InteliMonitor is a free PC SCADA software for on-line supervision of most ComAp brand controllers. The software is focused on comfortable monitoring of a group of controllers.

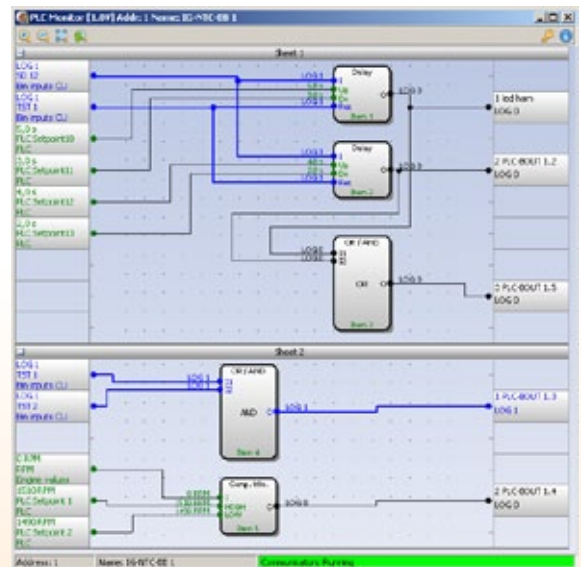


- Configurable site structure
- Easy site overview
- Values, setpoints, history display
- Statistics setting (kW hours, number of starts, etc.)
- User administration
- User defined SCADA
- Direct, modem or Internet connection

PLC Monitor

Part of InteliMonitor monitoring tool for selected ComAp controllers

- Easy online monitoring of PLC values
- Big progress in PLC support within InteliGen^{NT}, InteliSys^{NT} and InteliMains^{NT} controllers
- Significantly saves time during commissioning – provides overview of all current PLC values
- Besides PLC Editor which allows to compose PLC program we can now offer online presentation of actual PLC data
- Intuitive operation and easily visible signals
- Graphics consistent with PLC Editor
- Zoom functions for optimized reading





DriveMonitor

PC MONITORING TOOL

DriveMonitor is a PC monitoring tool for IntelliDrive DCU and IntelliDrive Mobile controllers.



Simply connected



- Active call receiving
- All measured values include J1939 data monitoring
- History record – alarm and operational states listing
- Setpoints adjusting
- Engine remote control
- Direct, modem or Internet connection



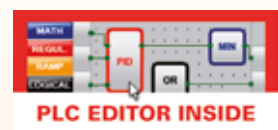
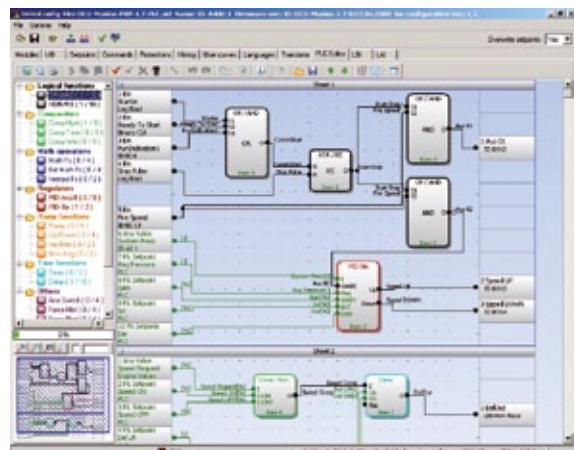
DriveConfig

PC CONFIGURATION TOOL

DriveConfig is an off-line PC configuration tool for IntelliDrive DCU and IntelliDrive Mobile controllers customizing.



Simply connected



- Inputs/Outputs modules addressing
- The controller Inputs/Outputs configuration
- J1939 values configuration
- History record configuration
- Password protection activation
- Sensor characteristics configuration
- Programmable logic configuration
- Controller texts translation
- Graphical, user-friendly PLC editor



The ComAp IntelliCharger is an advanced automatic battery charger which is suitable for all type of battery including sealed and gel type batteries.

Its optimized charging system provides an equalizing level charge to the discharged battery to recharge it in the fastest possible time. The equalizing charge also helps maintain the individual battery cells in top condition to give full electrical capacity when demanded. As charging progresses the charger will adjust its output to avoid possible overcharging or over gassing situations to minimize battery maintenance and maximize battery lifetime.

The IntelliCharger can be left connected to the battery continuously ensuring it is always charged and ready for use.

The IntelliCharger is fully protected against overload, reverse battery connection, over voltage and over temperature as standard.

IntelliCharger 12V

AUTOMATIC BATTERY CHARGER

- 4 A nominal outputs
- Advanced automatic battery charger
- Suitable for all battery types
- Optimized charging system
- Provides equalizing level charge
- Fully automatic operation
- 100% continuous operation
- Cost effective
- High reliability / Compact size
- Sealed electronic construction / Naturally cooled
- Soft-start circuit, limiting AC surge current / Short circuit protected
- Overload protected / Over voltage protected / Reverse battery protected
- Over temp. protected / 12 V nominal outputs



IntelliCharger 24V

AUTOMATIC BATTERY CHARGER

- 2,5 A nominal outputs
- Advanced automatic battery charger
- Suitable for all battery types
- Optimized charging system
- Provides equalizing level charge
- Fully automatic operation
- 100% continuous operation
- Cost effective
- High reliability / Compact size
- Sealed electronic construction / Naturally cooled
- Soft-start circuit, limiting AC surge current / Short circuit protected
- Overload protected / Over voltage protected / Reverse battery protected
- Over temp. protected / 24 V nominal outputs



IntelliCharger 500

AUTOMATIC BATTERY CHARGER

- 20 A nominal outputs
- High power and efficiency
- High reliability
- Suits all battery types
- Fully automatic operation
- 24 V nominal outputs
- Naturally cooled – fan less design
- Optional alarms (& bi-colour led's)
- Optional intelligent multi-stage charge profile with auto equalise
- Optional boost charging system



EP250

ELECTRONIC POTENTIOMETER

- Microprocessor-controlled device designed for control and regulation systems
- 3 binary inputs (increase, decrease, init), one 2-pole output of variable resistance
- Position of the wiper is controlled by binary inputs
- Current percentage value is indicated by LED bar graph on the front panel
- Setpoints (position change rate and init position) are adjustable via DIP switches



EP300

ELECTRONIC POTENTIOMETER

- Microprocessor-controlled device designed for control and regulation systems
- 3 binary inputs (increase, decrease, init), one 3-pole output of variable resistance (potentiometer)
- Position of the wiper is changed by binary inputs
- Current percentage value is indicated by LED display on the front panel
- Setpoints (position change rate, position limits, init position and others) are adjustable via buttons and LED display on the front panel



Applications

80

Gen-set controllers applications

100

Generator controllers applications

103

ATS controllers applications

104

Mains protections applications

106

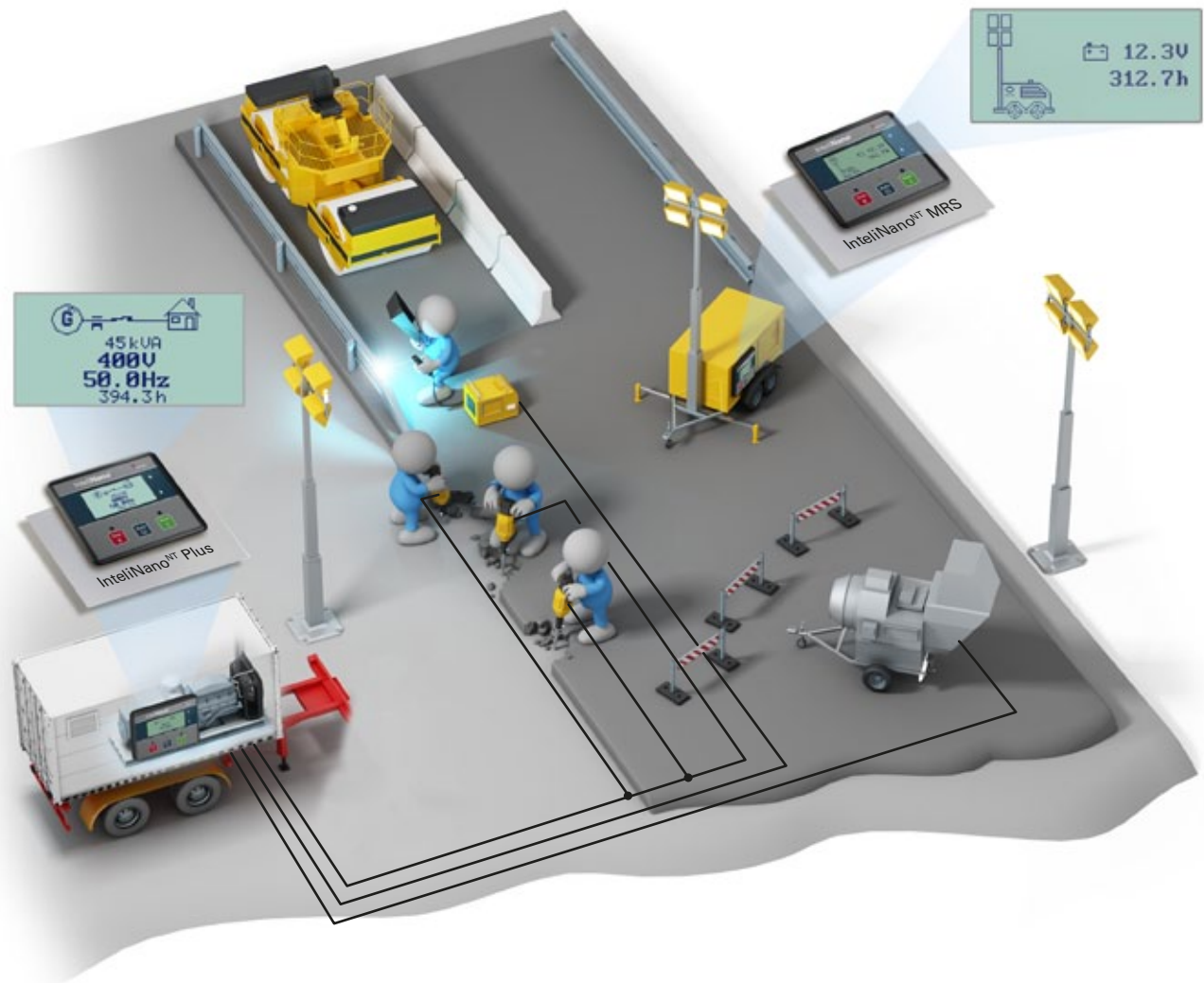
Engine controllers applications

116

Bifuel products applications



Prime mover system



Description:

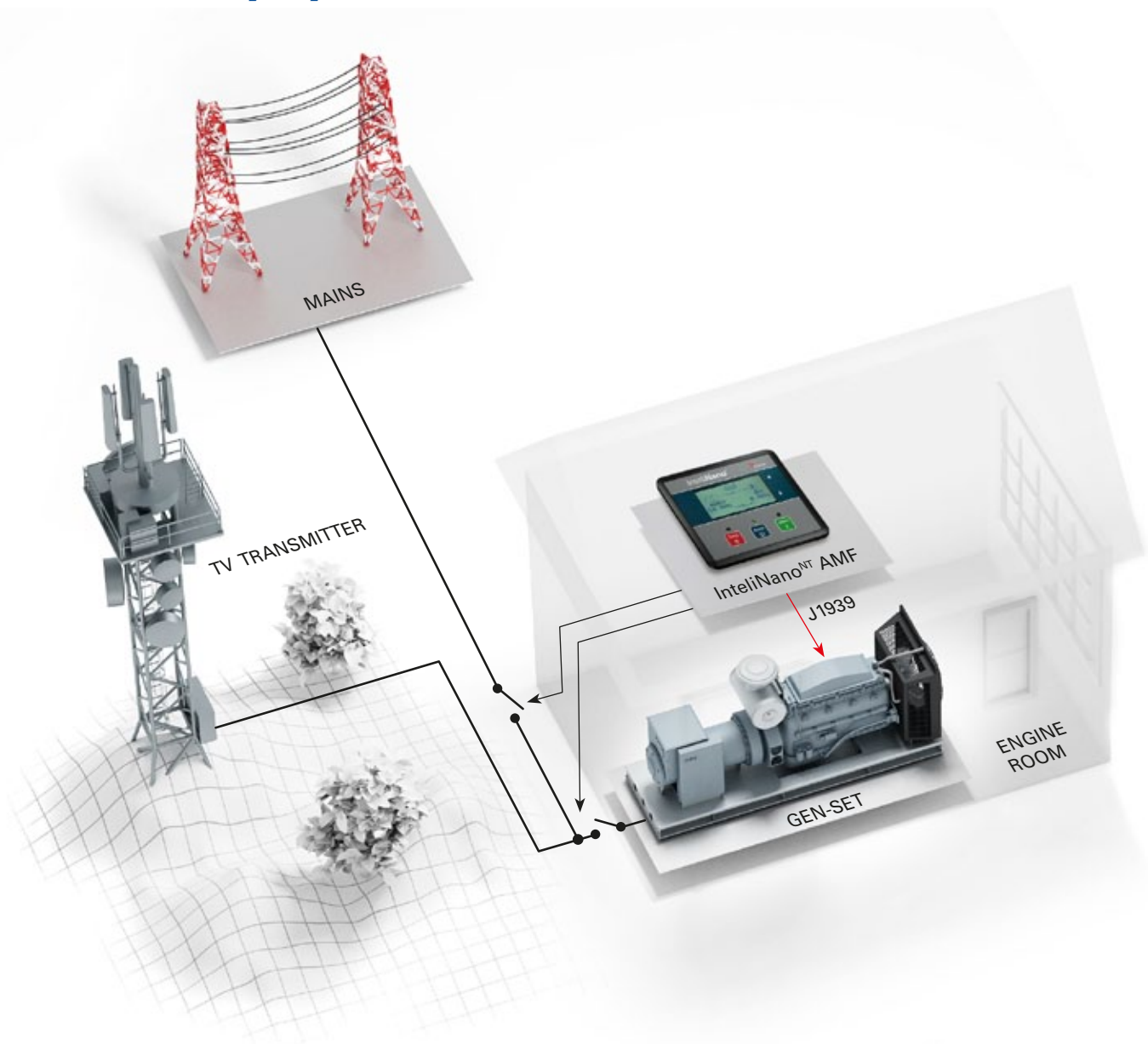
- Manual and remote start for gen-sets with electronic engines. InteliNano^{NT} MRS starts, controls and monitors the gen-set and controls the circuit breaker to supply the load.
- The generator is protected by built in over/under voltage and frequency protection systems.
- The controller communicates with the engine management unit via a CAN J1939 bus and shows engine values and alarms on a graphical LCD screen.
- The controller enters sleep mode when the generator is not being used, allowing extended battery life for the unit.
- Special LCD screen for Light tower support.
- Current Measurement is the key feature of the InteliNano^{NT} Plus, allowing the user to maximise engine power.

Scope of supply:

- 1x InteliNano^{NT} MRS
- 1x InteliNano^{NT} Plus



Standby system



Description:

- Stand-by gen-set with electronic engine. InteliNano^{NT} AMF continuously monitors a mains supply and automatically starts an engine and switches load to a standby generator set in case of failure.
- The generator is protected by built in over/under voltage and frequency protection systems.
- The controller communicates with the engine management unit via a CAN J1939 bus and shows engine values and alarms on a graphical LCD screen.

Scope of supply:

- 1x InteliNano^{NT} AMF



Prime mover system – remote monitoring via Internet



Description:

- Manual and remote start of gen-set with electronic engine. IntelliLite^{NT} MRS 16 starts, controls and monitors the gen-set and controls the circuit breaker to supply the load.
- Service provider can monitor and control gen-set operation remotely via Internet.
- Controller sends active E-mails upon alarm event.
- The generator is protected by a built in over/under voltage and frequency protections as well as IDMT overcurrent protection.
- The controller communicates with engine management unit by a CAN J1939 bus. Engine values and alarms are visible on a graphical LCD screen in plain language – no need to learn cryptic flashing or numeric error codes.

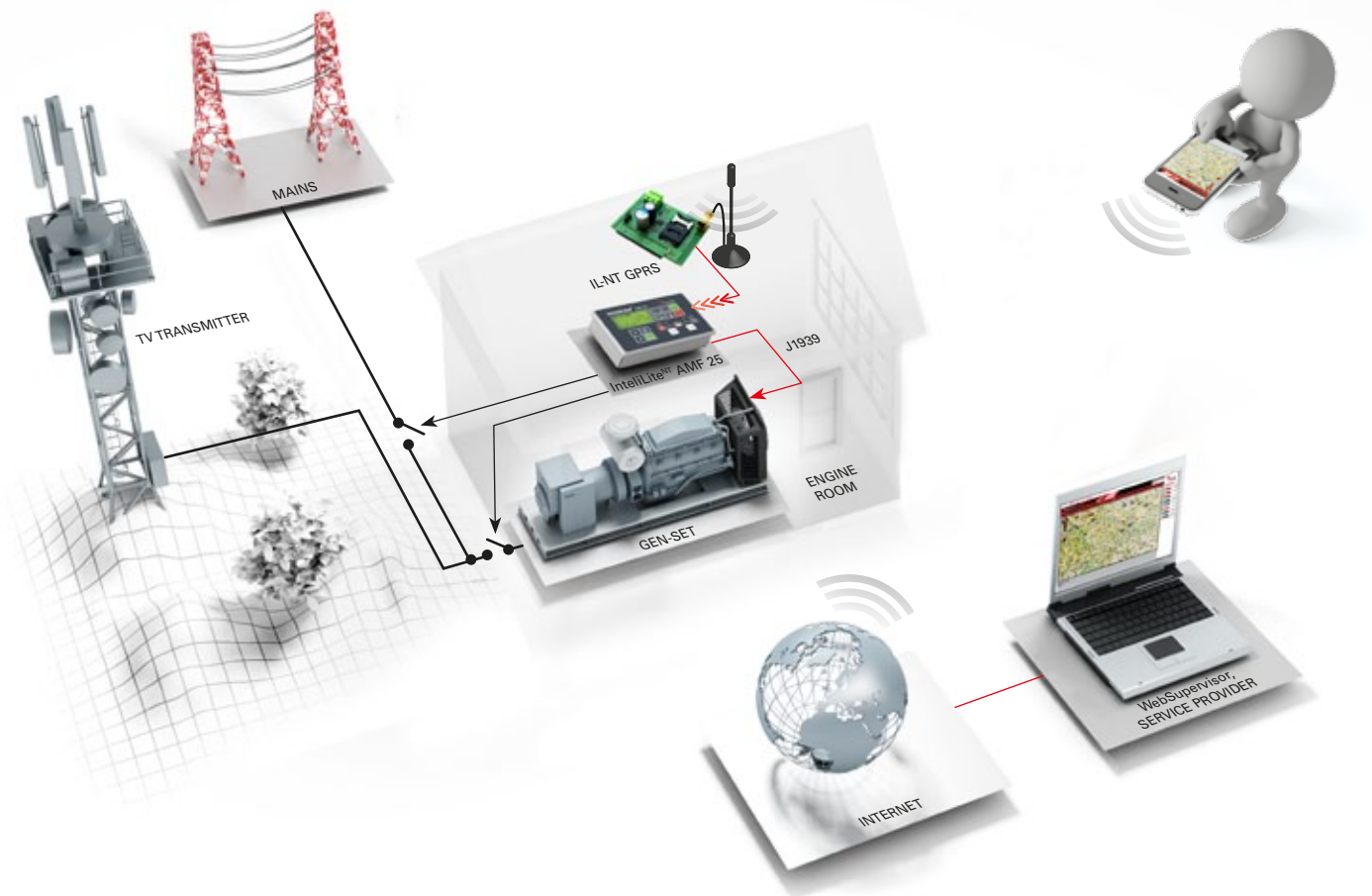
Scope of supply:

- 1× IntelliLite^{NT} MRS 16
- 1× IB-Lite



Standby system

- remote monitoring via Internet



Description:

- Stand-by gen-set with electronic engine. IntelliLite^{NT} AMF 25 continuously monitors a mains supply and automatically starts an engine and switches load to a standby generator set in case of mains failure.
- The service provider can monitor the gen-set operation remotely via GPRS modem.
- The operator can use LiteEdit for a single gen-set view or WebSupervisor for total fleet management.
- The generator is protected by a built in over/under voltage and frequency protections as well as IDMT overcurrent protection.
- The controller communicates with engine management unit by a CAN J1939 bus. Engine values and alarms are visible on a graphical LCD screen in plain language – no need to learn cryptic flashing or numeric error codes.

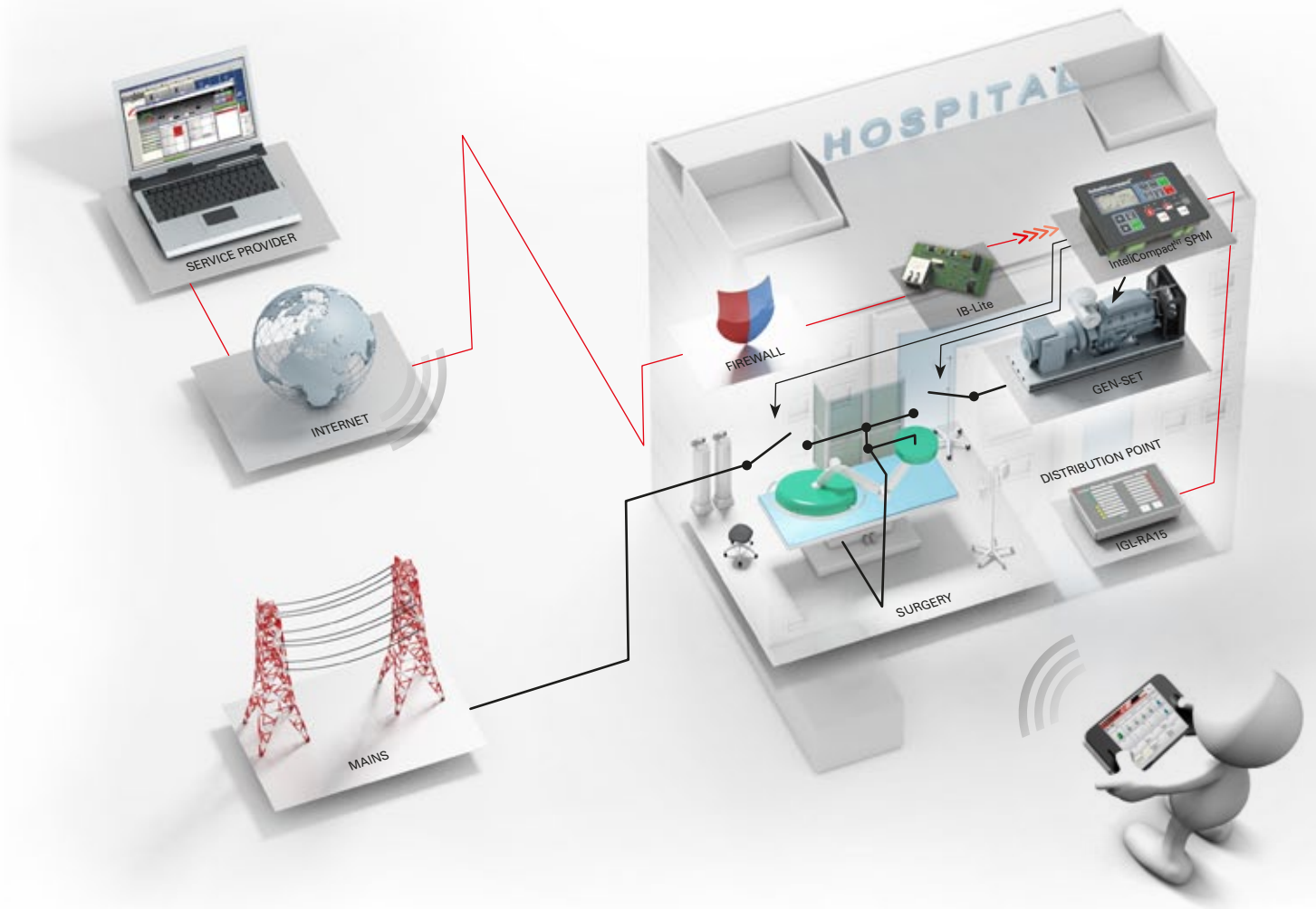
Scope of supply:

- 1x IntelliLite^{NT} AMF 25
- 1x IL-NT GPRS



Standby system with soft return

- remote monitoring and control via Internet



Description:

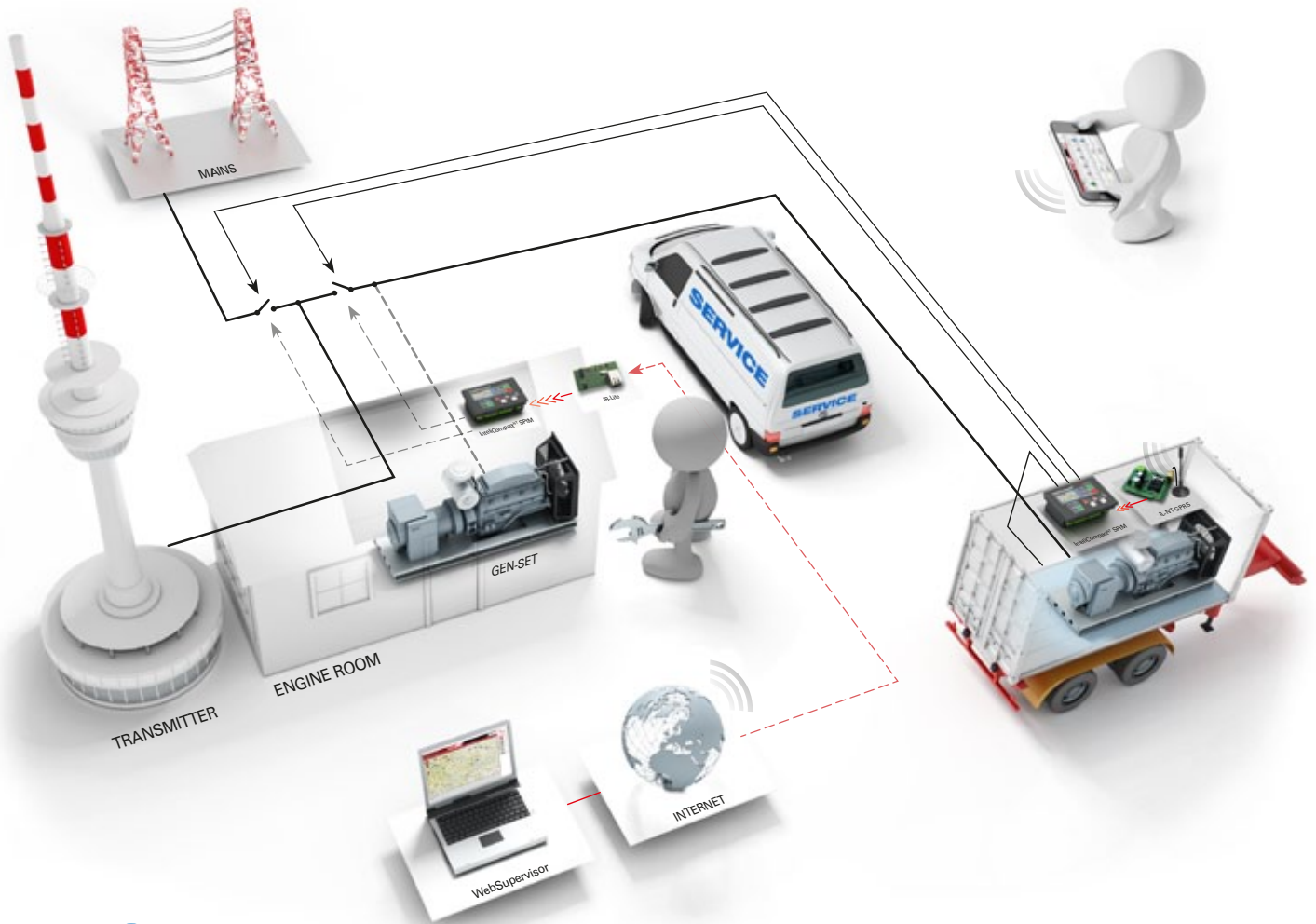
- Stand-by emergency gen-set accomplishes power supply to essential load during power drop.
- The controller automatically starts the gen-set in case of mains failure and switches load to generator. When mains power returns, it synchronizes the generator back, softly unloads it and stops the engine.
- Generator automatically synchronizes to mains in Test mode. Test mode can be used to check the gen-set condition and to provide uninterrupted power supply in case of expected mains failure.
- Status of the gen-set is displayed in the distribution point.
- IntelliMonitor is used for remote monitoring and control; connected via IB-Lite.
- History file with performance log stored in IntelliCompact^{NT} SPtM allows easy backtracking and problem solving.
- Seamless communication with engine's electronic injection control unit, all important values and alarms are visible on screen of IntelliCompact^{NT} and stored to the history file in plain language.

Scope of supply:

- 1x IntelliCompact^{NT} SPtM
- 1x IG-AVRi
- 1x IG-AVRi-TRANS/LV
- 1x IB-Lite



Rental standby system with soft return



Description:

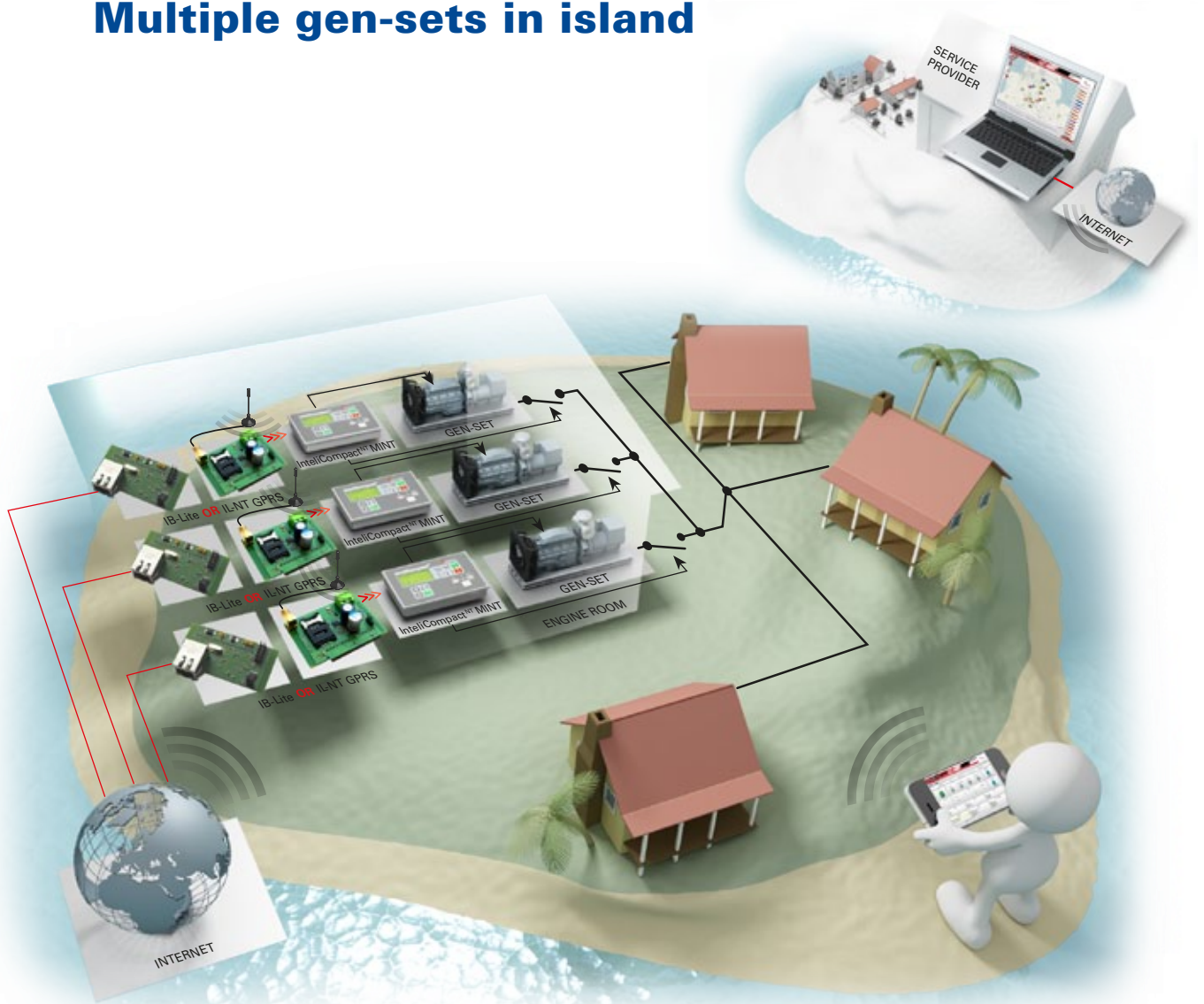
- Rental stand-by emergency gen-set to provide power to essential services during a power drop, as a backup to a common stand-by system.
- The controller automatically starts the gen-set in case of mains failure and switches the load to the generator. When mains power returns, it synchronizes the generator back, softly unloads it and stops the engine.
- The generator automatically synchronizes to the mains in its Test mode. The Test mode can be used to check the gen-set condition and to provide uninterrupted power supply in case of expected mains failure.
- The status of the gen-set is displayed at the distribution point and can also be monitored via smartphone.
- WebSupervisor is used for remote monitoring and control; connected via an IL-NT GPRS. It is also possible to control localization and sequential movement of a rental gen-set.
- History file with performance log stored in InteliCompact^{NT} SPTM allows easy backtracking and problem solving.
- Seamless communication with the engine's electronic injection control unit, all important values and alarms are visible on screen of InteliCompact^{NT} and stored to the history file in plain language.
- The function of FuelTheft is to monitor fuel levels, and provide notification alarms in case of fuel theft or fuel leak.

Scope of supply:

- 2x InteliCompact^{NT} SPTM
- 1x IB-Lite
- 1x IL-NT GPRS
- 2x IG-AVRi
- 2x IG-AVRi-TRANS/LV



Multiple gen-sets in island



Description:

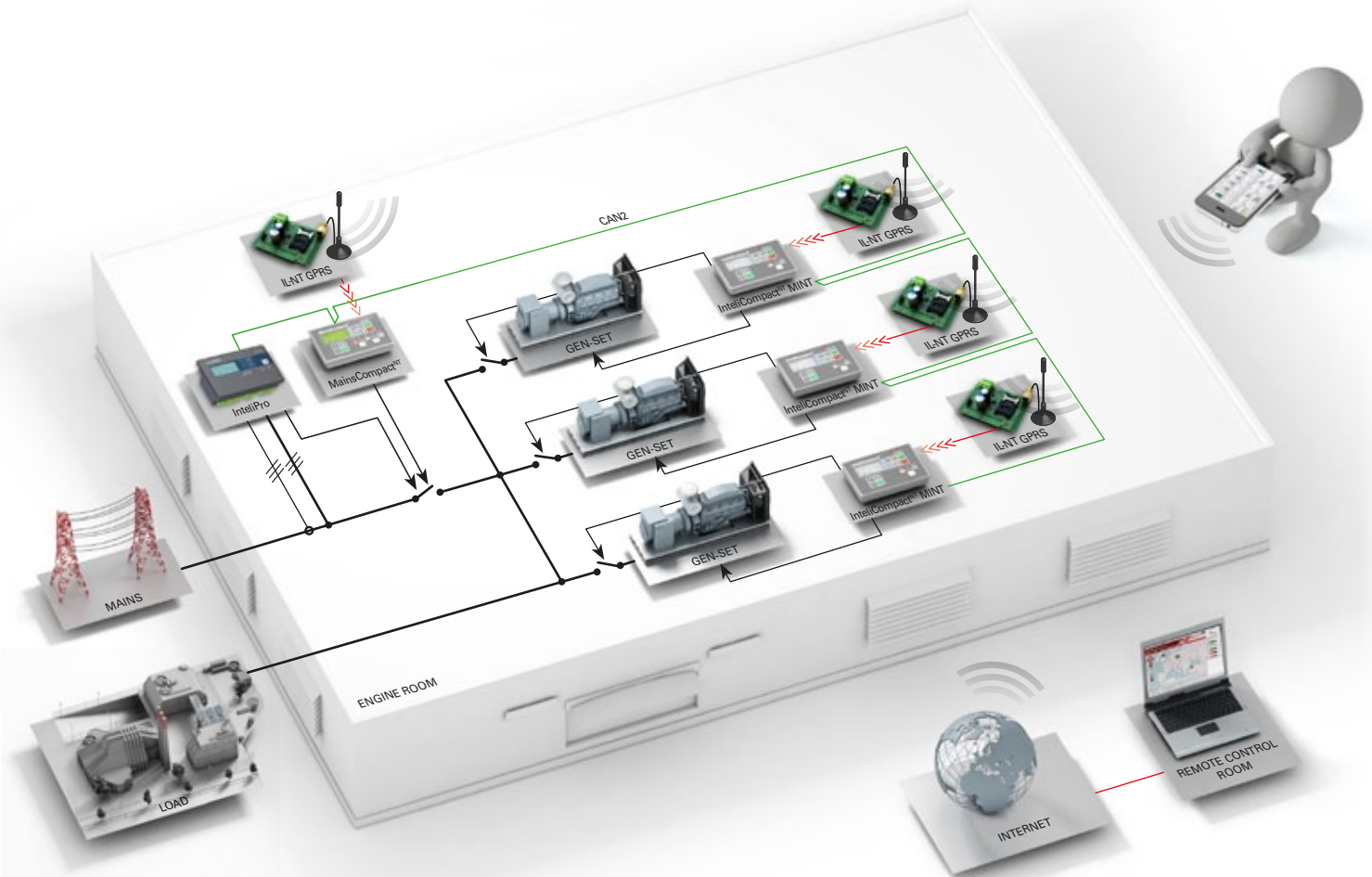
- For use in a fully independent, non-grid connected system, which is the only available power source.
- Automatic forward and reverse synchronization with soft load ramp-up and ramp-down during changeover.
- In built Power management system, enabling automatic optimization of number of running gen-sets according to load (including Run Hours equalization).
- Remote control and monitoring via IL-NT GPRS or IB-Lite (easy with AirGate technology).
- WebSupervisor or LiteEdit can be used for remote monitoring and control.
- Wide range of engine and generator protections, including vector-shift protection, loss of excitation and earth fault current protection.
- Option to control the gen-sets via SMS.
- Extensive history file, with performance log, stored in InteliCompact^{NT} MINT allows easy backtracking and problem solving.
- Seamless communication with the engine's electronic injection control unit, all important values and alarms are visible on the InteliCompact^{NT} screen and stored to the history file in plain language.

Scope of supply:

- 3x InteliCompact^{NT} MINT
- 3x IB-Lite or IL-NT GPRS
- 3x IG-AVRi
- 3x IG-AVRi-TRANS/LV



Multiple gen-sets in parallel to grid - remote monitoring and control via Internet



Description:

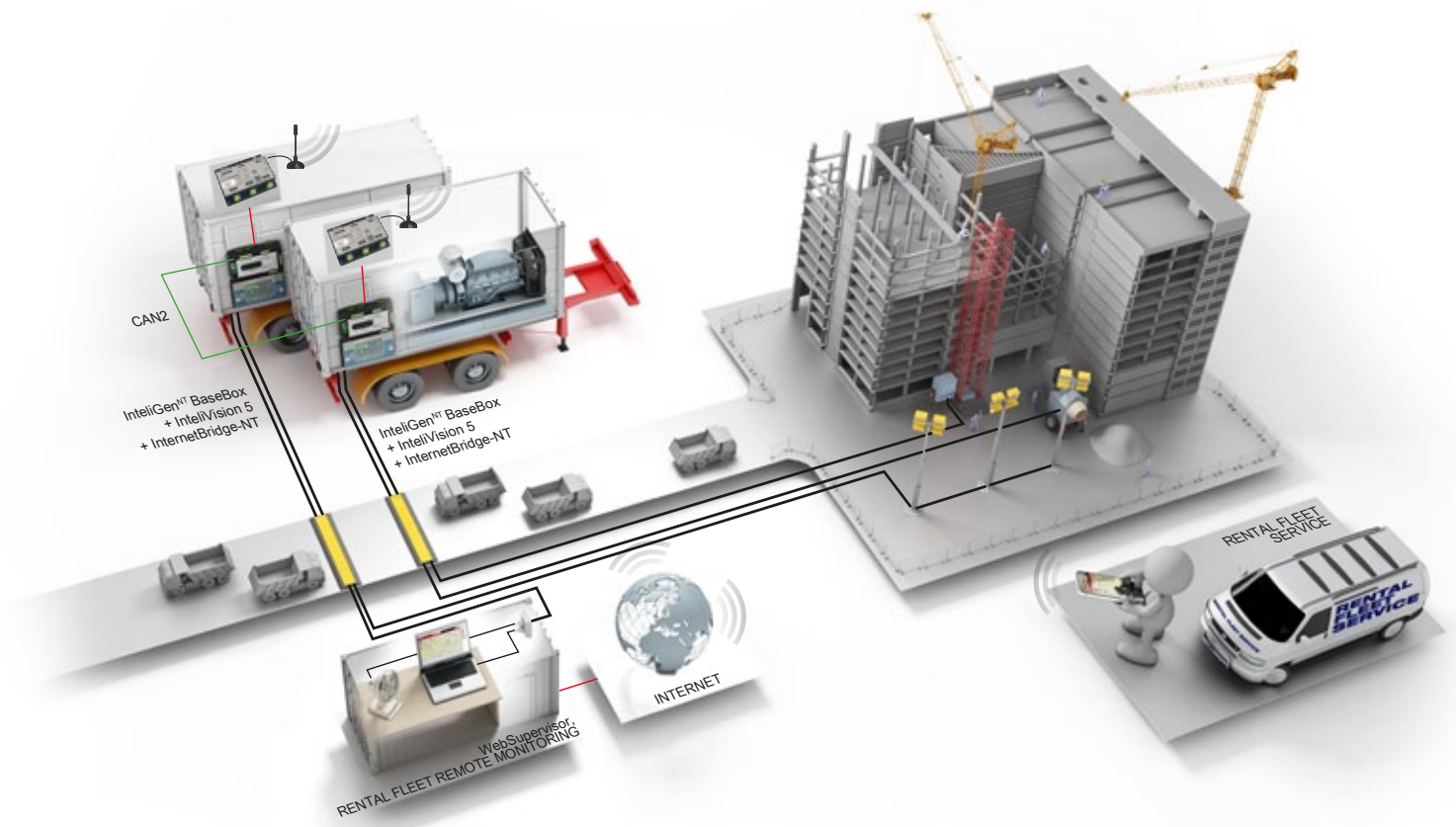
- Fully automatic system reduces electric energy bill by keeping the mains power below high tariff level during peak hours.
- At the same time it accomplishes emergency standby power in case of mains failure.
- Remote control and monitoring via IL-NT GPRS.
- WebSupervisor is used for remote monitoring.
- Wide range of engine and generator protections, including vector-shift protection, loss of excitation and earth fault current protection.
- Automatic forward and reverse synchronization with soft load ramp-up and ramp-down during changeover.
- Common synchronization of InteliCompact^{NT} MINT controllers provided by MainsCompact^{NT}.
- Active and reactive load import/export control and load-sharing.
- Automatic optimization of number of running sets according to load (including Run Hours equalization).
- Peak shaving controlled by built in Scheduler, engines automatically run during peak period.
- History file with performance log stored in InteliCompact^{NT} MINT allows easy backtracking and problem solving.
- Seamless communication with engine's electronic injection control unit, all important values and alarms are visible on screen of InteliCompact^{NT} and stored to the history file in plain language.
- Mains protection InteliPro provides wider range of protective features for higher reliability and increased safety of the system operation.

Scope of supply:

- 3x InteliCompact^{NT} MINT
- 3x IG-AVRi-TRANS/LV
- 4x IL-NT GPRS
- 3x IG-AVRi
- 1x MainsCompact^{NT}
- 1x InteliPro



Rental sets



Description:

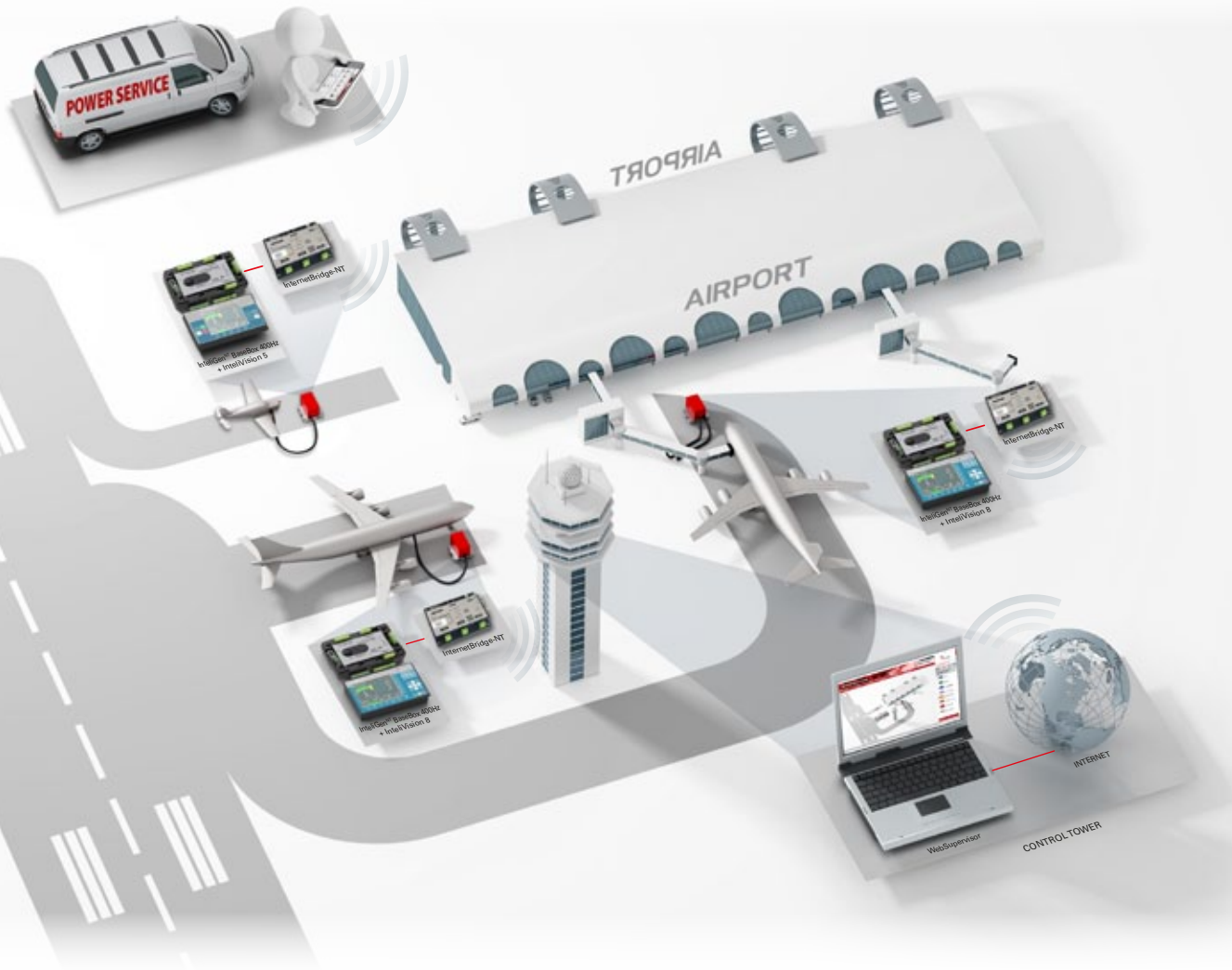
- Containerized rental gen-sets are deployed as temporary and mobile power generation units providing essential energy for subsystems and construction machinery on building projects or civil engineering applications where mains power is not available or has been manually disconnected.
- The application shows rental gen-sets fitted with the latest remote communication module InternetBridge-NT which enables the central control facility and mobile service engineers to efficiently monitor, control and supervise equipment wherever it is located. By using the supportive web based software applications such as WebSupervisor, rental operators can significantly improve operational control.
- Each gen-set can be used in Stand-by, Single parallel to mains and Multiple parallel modes according to the position of Mode selector switch.
- Load sharing and VAR sharing can be conditionally switched from isochronous regulation to droop. It ensures reliable operation in case of cut off the CAN intercontroller communication line or cooperation with the gen-sets equipped with third-party control system.

Scope of supply:

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



Ground power unit for aircraft



Description:

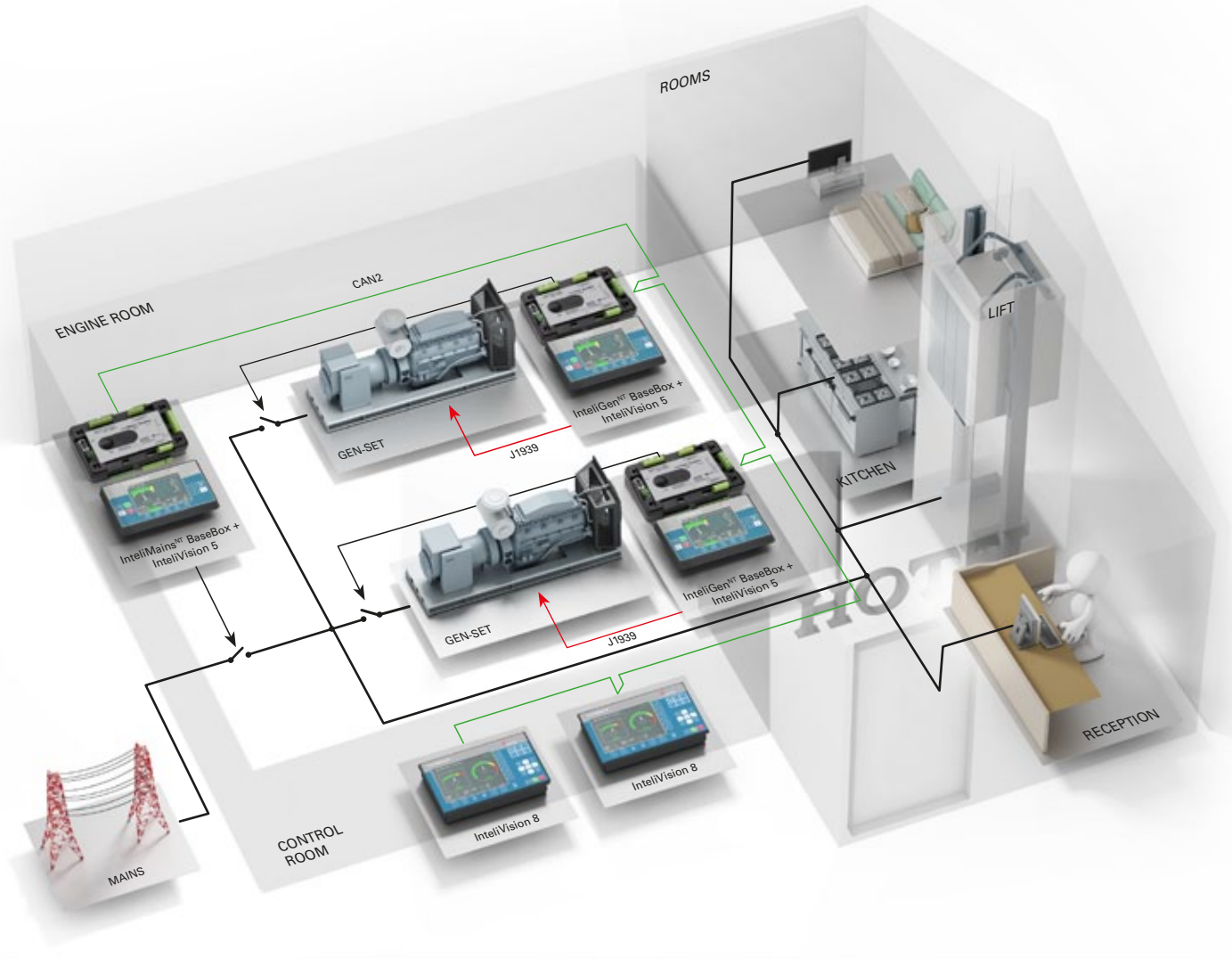
- Large aircraft are fitted with an auxiliary power unit (APU or GPU) providing power when they are on the ground. However many airports require this to be turned off, when the airplane is docked.
- So that the aircraft systems can still operate whilst the APU is off, power is provided by a ground power unit (GPU). This in turn means that the engines to the plane are turned off and thus noise is eliminated, saving fuel costs and dispersing any type of emissions.
- The ComAp 400Hz controller is tailored to applications where large stationary aircraft require synchronizing and power management whilst operating on an AC electrical system at 400Hz frequency.
- The InteliGen^{NT} BaseBox 400Hz, with support engines with ECU's (Electronic Control Units), and work in conjunction with detachable colour displays InteliVision 5 or InteliVision 8 which can be connected with InternetBridge-NT using AirGate and WebSupervisor – to provide remote administration and maintenance of all GPU powered aircraft on the ground.
- This can then relay information to a central or mobile location, such as where the GPUs are located in the airport, if they are connected and powering the aircraft, and how much fuel is in the gen-set tank... ensuring that engineers remain connected to the system at all times.

Scope of supply:

- 3x InteliGen^{NT} BaseBox 400Hz
- 2x InteliVision 8
- 1x InteliVision 5
- 3x InternetBridge-NT



Standby system with load shedding – advanced displays



Description:

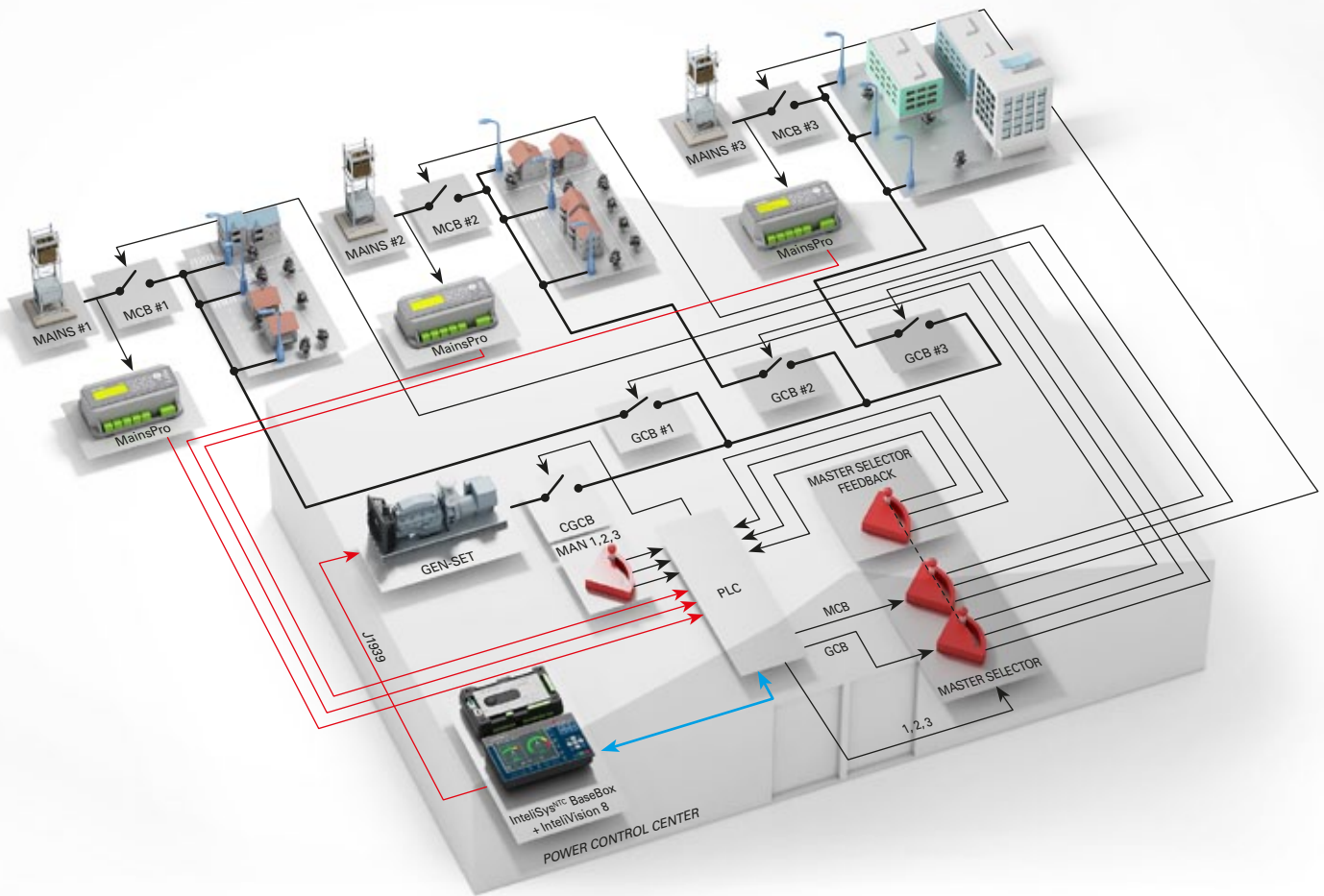
- The system guarantees emergency standby power in case of mains failure.
- IntelliMains^{NT} BaseBox provides AMF function and activates mains to gen-sets changeover in the case of mains failure no break return to mains.
- Load shedding can take place during the changeover to trip the unessential load when gen-set goes to island.
- Gen-set starts, the power is ramped-up, load is reconnected. The second gen-set is started if needed (more load requires more genset-power).
- Automatic forward and reverse synchronisation with soft load ramp-up and ramp-down during changeover is available.
- Wide range of engine and generator protections, including vector shift protection are standard features.
- Automatic optimization of number of running sets according to load can be selected.
- Automatic equalization of running hours of particular engines is available.
- History file with performance log stored in IntelliGen^{NT} BaseBox allows easy backtracking and problem solving.

Scope of supply:

- 2x IntelliGen^{NT} BaseBox
- 2x IntelliVision 8
- 1x IntelliMains^{NT} BaseBox
- 3x IntelliVision 5
- 2x IG-AVRi
- 2x IG-AVRi-TRANS/LV
- 2x IGS-NT -LSM + PMS dongle



More loads - multiple grids



Description:

- In case of manipulation, the system switches from one branch to another by turning of the Master Selector Switch (MSS): BO MSS turn is used to turn the MSS.
- The mains voltage measurement, generator current measurement, MCB and GCB feedbacks, MCB and GCB control signals and Mains Failure (MF) signals (MainsPro outputs) are switched by the MSS, so that the system continuously "sees" only the selected branch.
- MCB and GCB are operated by pulse signal (GCB open/close, MCB close). The pulse is issued as a request for CB operation and terminated at the moment of corresponding feedback receipt.
- The MainsPro relays monitor mains on all 3 branches. In case of any MF, the gen-set is started.
- In case of MF on any branch, the proper MainsPro opens MCB, MSS switches to the failed branch and closes GCB.
- If a MF occurs on a different branch at the same moment, the controller finishes manipulation of GCB, MSS switches to a different branch and closes the other GCB.
- After an existing MF state terminates on any branch, the MSS turns to this branch, IntelliSys^{NTC} BaseBox reverse-synchronizes and closes MCB and opens GCB. Short-time parallel is allowed on the current branch.
- The MSS is blocked from moving away from a branch, where:
 - parallel operation is in effect
 - GCB open/close or MCB close signals are active
 - MF signal is in effect and GCB is open
- In case that all existing MF are solved and all GCB's are open, the gen-set stops.

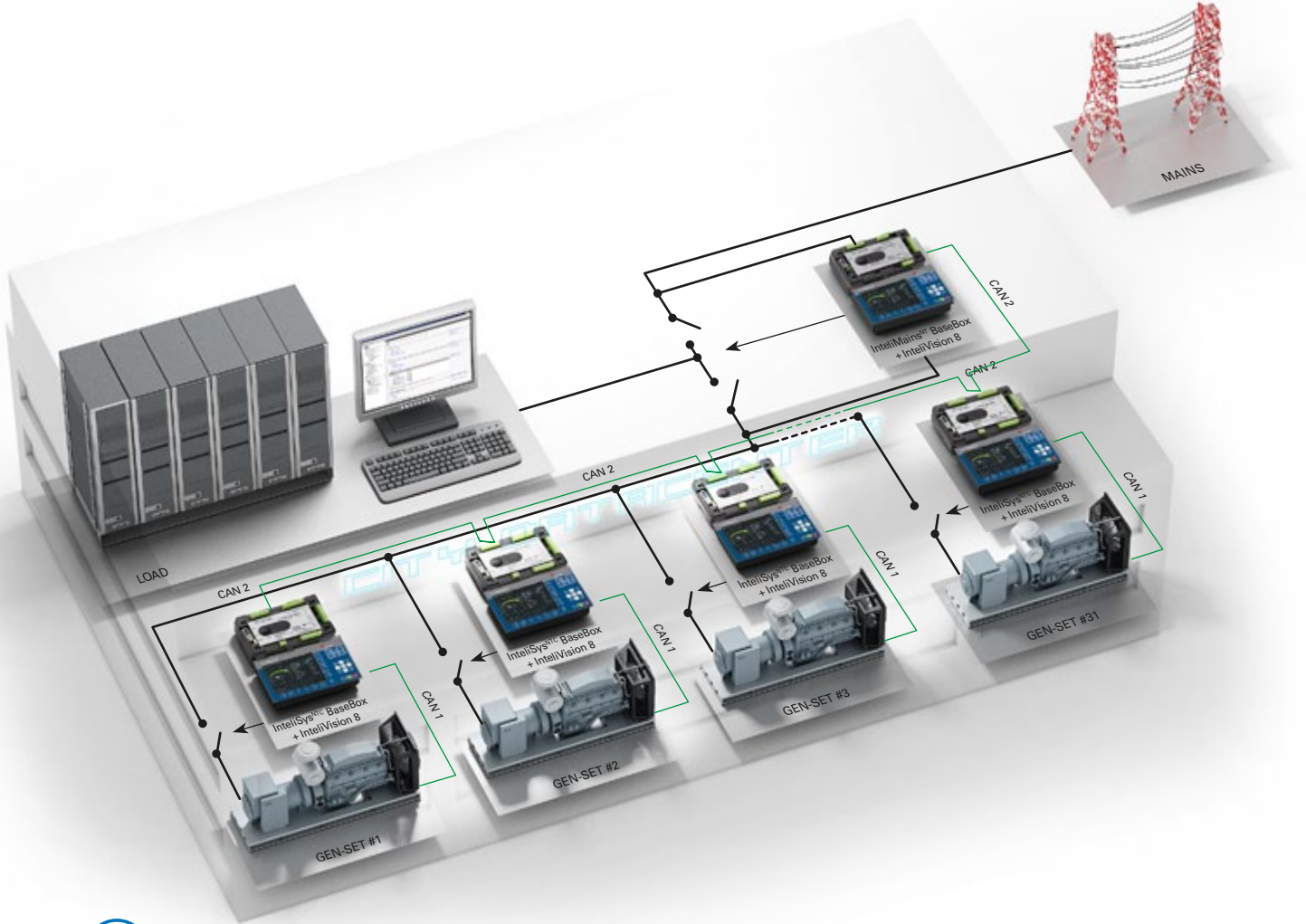
Scope of supply:

- 1x IntelliSys^{NTC} BaseBox
- 3x MainsPro
- 1x IG-AVRI
- 1x IG-AVRI-TRANS/LV
- 1x PLC (not delivered by ComAp)
- 1x IntelliVision 8
- 1x Motorized rotary switch with 3x 16 contacts (not delivered by ComAp)



Start-up synchro gensets

- quick AMF without standard gen-set synchronization



Description:

- Application for faster start-up sequence of multiple generators.
- No need to synchronize generators by standard way and wait until all of them are synchronized on the same bus.
- Suitable for standby applications.
- Eliminates possible blackout time.
- Ideal for systems running on UPS.
- System available at full capacity in 8-10 seconds from start command.
- Start-up time remains constant even if the number of generators is increased to 10, 20 or 31.
- To avoid delaying availability of the system due to slow-starting generators or other problems, any engines that fail to reach running speed within a specified time are "rejected" from the scheme and, if able, are left to perform traditional synchronizing after the majority of sets have become available
- Traditional synchronizing is available to allow for slow-starting generators
- Automatic switching to traditional synchronizing in case insufficient sets are available to meet load's requirements.
- The soft magnetizing of feed transformers – solves the problem where grid supply is not capable of supplying the inrush and decreases the overall cost of the installation.

Controller options:

- InteliGen^{NT} or InteliSys^{NT} controllers with IGS-NT-SUS software
 - InteliGen^{NT} models: InteliGen^{NTC} BaseBox, InteliGen^{NT} BaseBox, InteliGen^{NT}
 - InteliSys^{NT} models: InteliSys^{NTC} BaseBox, InteliSys^{NT} BaseBox

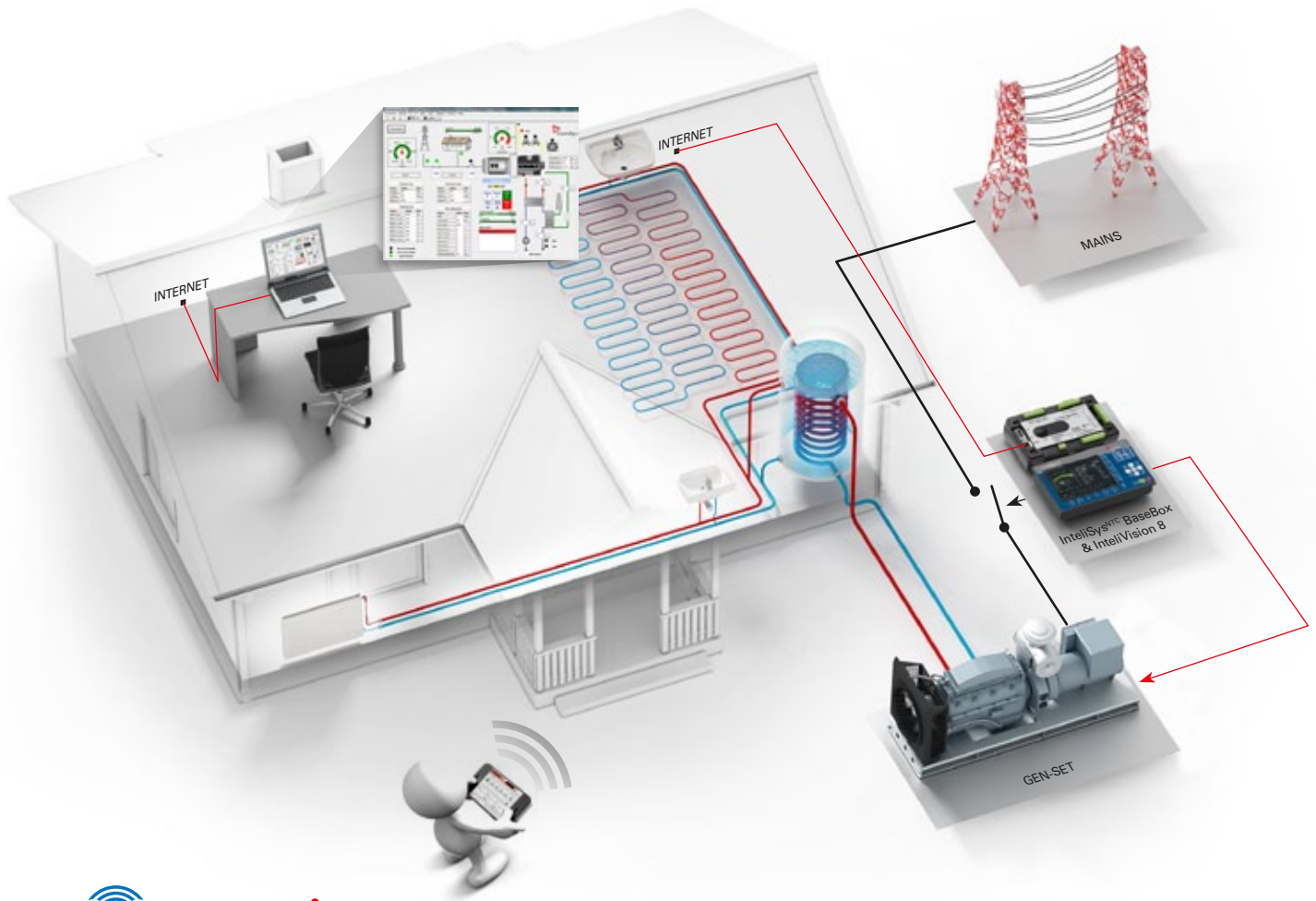
Dongle options:

- IGS-NT-SUS-LSM+PMS dongle or IGS-NT-LSM+PMS dongle (for MINT, COX and COMBI archive only)



Asynchronous generator control

- asynchronous generator for small CHP



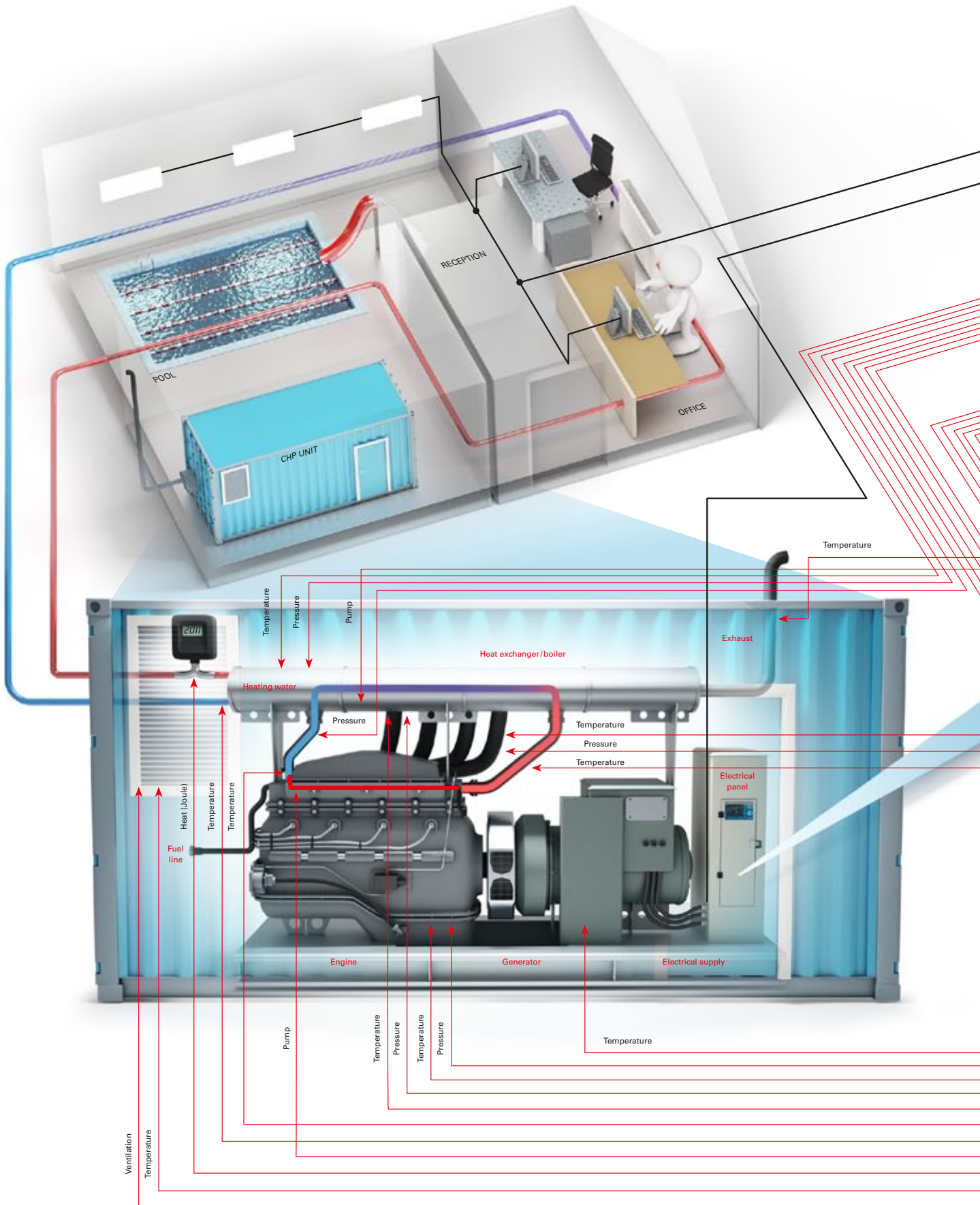
Description:

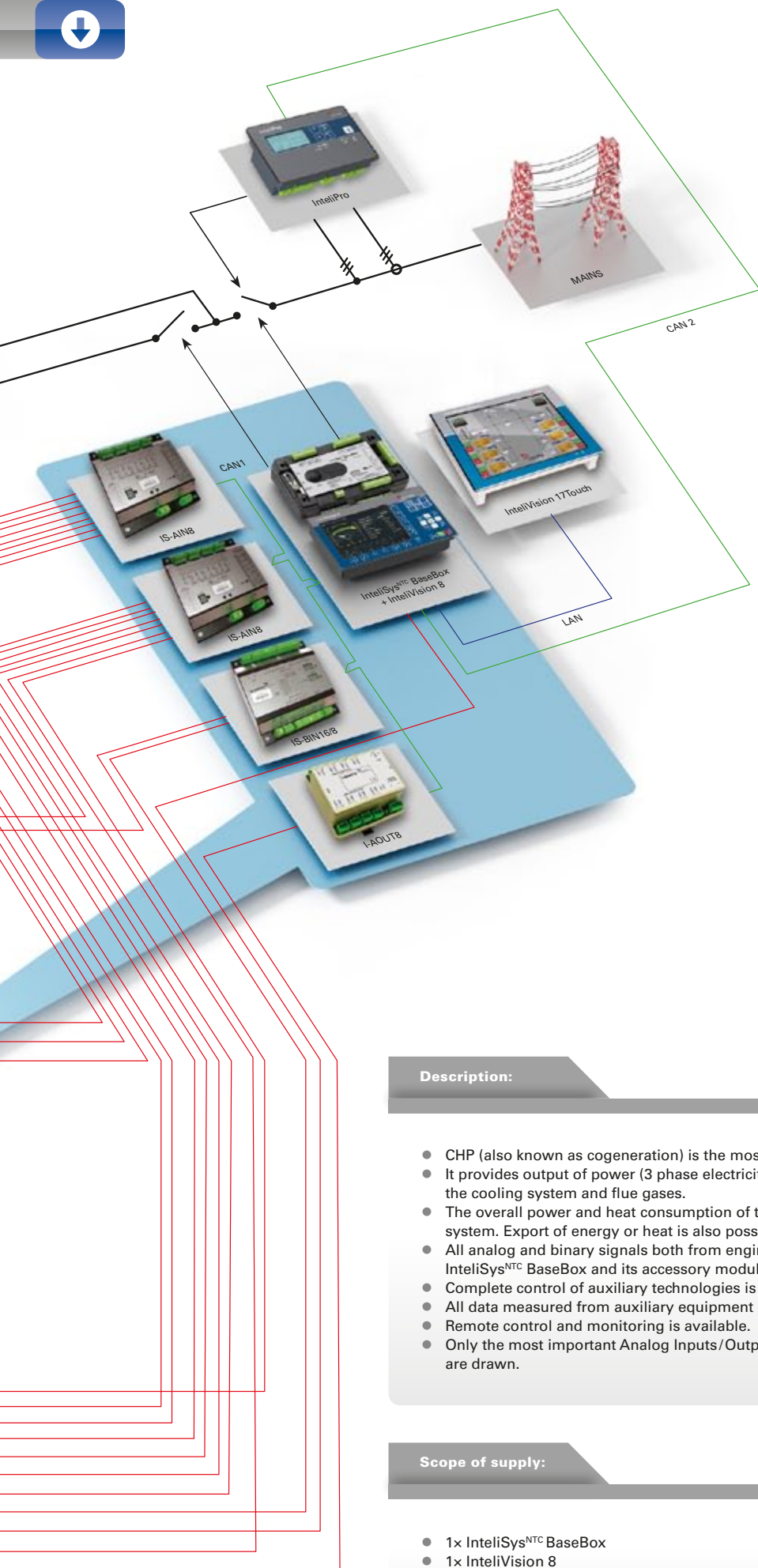
- Application for gen-set with asynchronous generator
- Extend PLC editor with blocks of regulators for control small CHP
- Controller can automatically starts the gen-set by schedule (according to the tariff zone)
- Gen-set with asynchronous generator is possible to run to the mains only
- Controller provides all standard protections for gen-set with configuration options
- Remote control and monitoring is available through WebSupervisor or IntelliMonitor.
- WebSupervisor iPhone App gives you direct access to your WebSupervisor account to monitor your asynchronous gen-set. Stay simply connected.
- CHP (combined heat and power) is the most efficient way of using fossil or renewable fuel, because heat from the engine is used for home heating and produced electrical energy is sold to the mains.

Controller options:

- IntelliGen^{NT} or IntelliSys^{NT} controllers with IGS-NT-Async software
 - IntelliGen^{NT} models: IntelliGen^{NTC} BaseBox, IntelliGen^{NT} BaseBox, IntelliGen^{NT}
 - IntelliSys^{NT} models: IntelliSys^{NTC} BaseBox, IntelliSys^{NT} BaseBox

Combined heat and power (CHP) - cogeneration





Description:

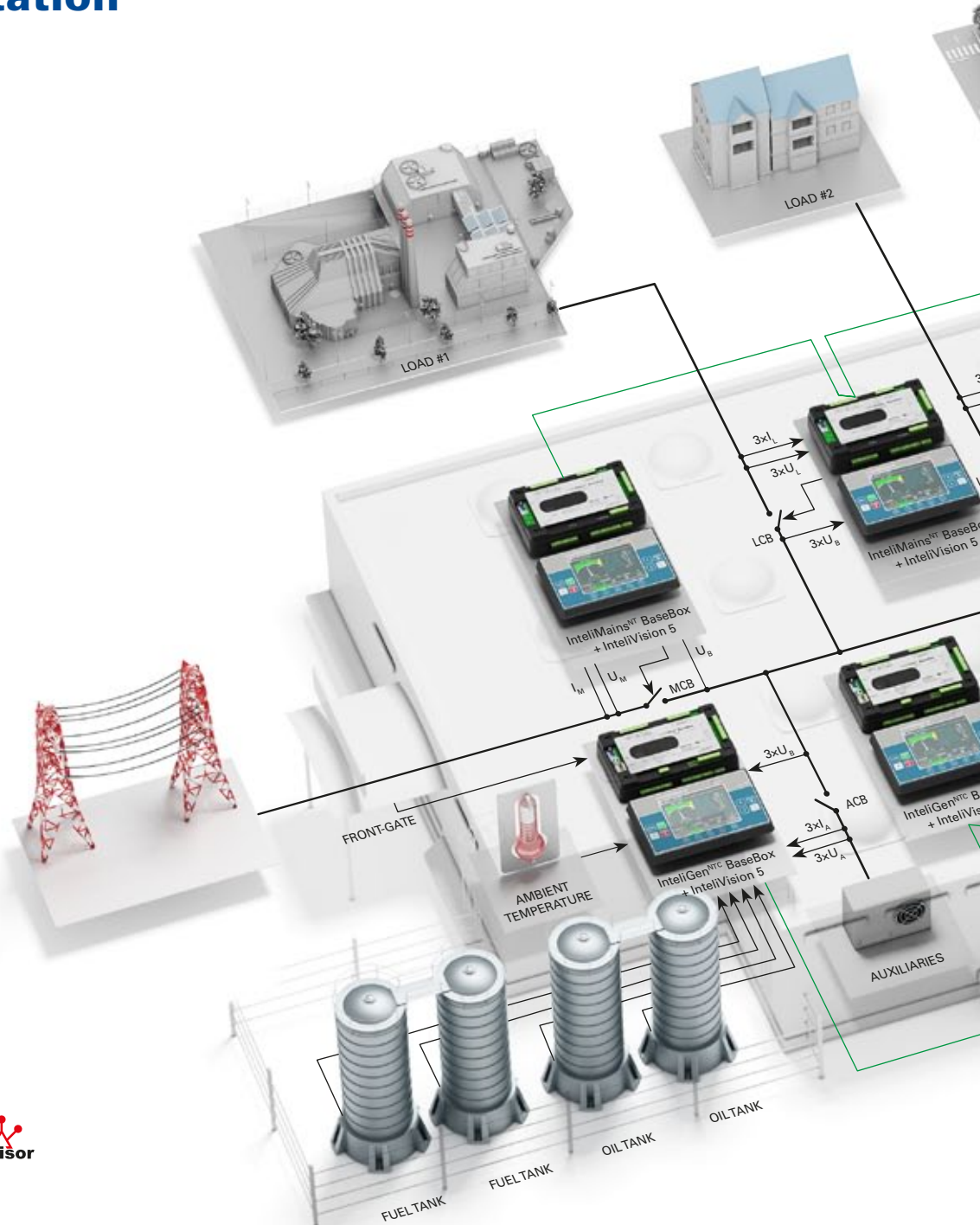
- CHP (also known as cogeneration) is the most efficient way of using fossil or renewable fuel.
- It provides output of power (3 phase electricity) and heat (hot water), which is recovered from the cooling system and flue gases.
- The overall power and heat consumption of the application can be covered by the CHP system. Export of energy or heat is also possible.
- All analog and binary signals both from engine and from auxiliary systems are measured by IntelliSys^{NTC} BaseBox and its accessory modules.
- Complete control of auxiliary technologies is done by built-in PLC module.
- All data measured from auxiliary equipment are stored in a history file.
- Remote control and monitoring is available.
- Only the most important Analog Inputs/Outputs and Binary Inputs/Outputs connections are drawn.

Scope of supply:

- 1x IntelliSys^{NTC} BaseBox
- 1x IntelliVision 8
- 1x IntelliVision 17Touch
- 1x IS-BIN16/8
- 2x IS-AIN8
- 1x I-AOUT8
- 1x IG-AVRi
- 1x IG-AVRi-TRANS/LV
- 1x IntelPro

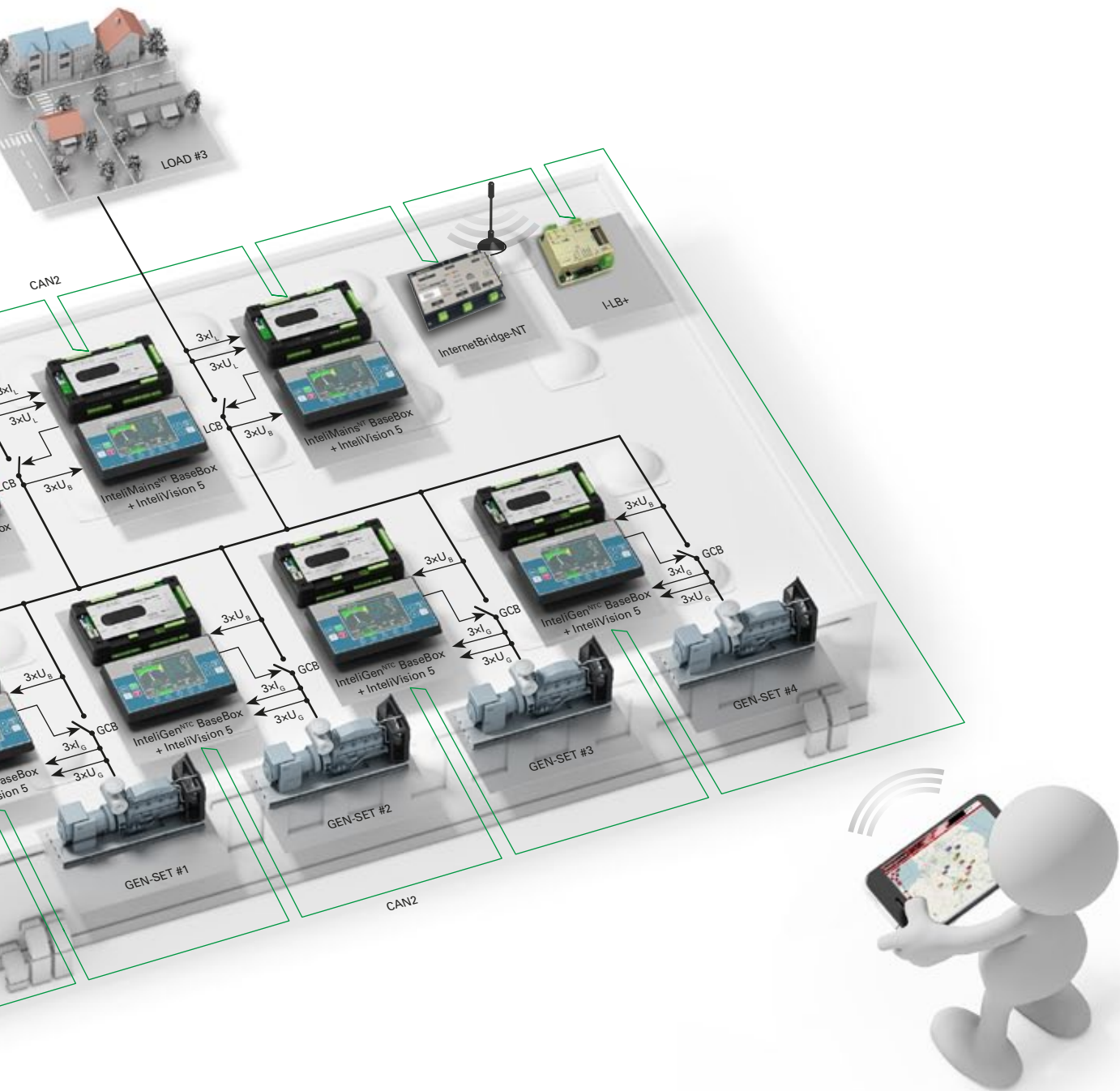


Power station



Description:

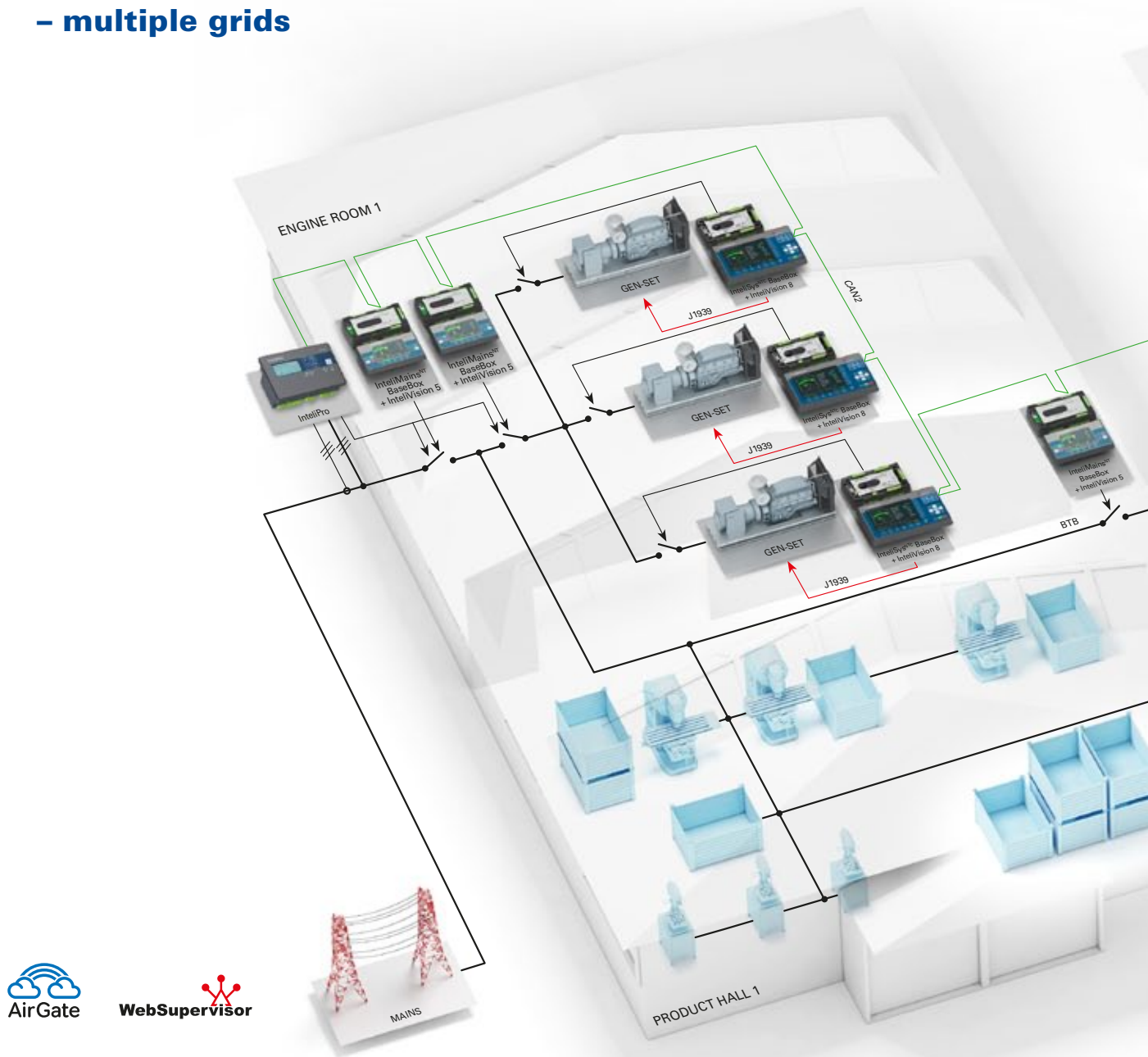
- Automatic start and stop of gen-sets is based on the gen-set Priority change provided by the controller equipped with IGS-NT-PSC software.
- Power Management for 16 different power bands allows increasing the efficiency of power station based on combination of engines of different size.
- Power Station Controller (PSC) ensures even more reliable solution for run hours equalization mode with up to 30 gensets and meet the highest criteria for run hours balancing and related maintenance afterwards.
- Auxiliary devices control like a complete fuel system control (two fuel pumps control build-in), fans, air-conditioning with defined functions or with extended programmable logic control.
- Master control of group of gensets and auxiliary devices with all important monitoring data.
- IntelliMonitor and WebSupervisor are used for remote monitoring and control.
- Alarm messaging via SMS or active e-mails introduces the comfortable daily solution.
- History file with performance log stored in the controller (it is possible to use IntelIGen^{NT}, IntelIGen^{NT} BaseBox, IntelIGen^{NTC} BaseBox, IntelliSys^{NT} BaseBox or IntelliSys^{NTC} BaseBox).
- ComAp controllers' CAN bus compatibility allows the user to connect a Power Station unit into a new or existing installation to create a higher specified solution immediately.
- Maximize the power of AirGate technology by connecting through a GSM network.
- Complete power station solution provided in cooperation with IntelIMains^{NT} FDR application.



Scope of supply:

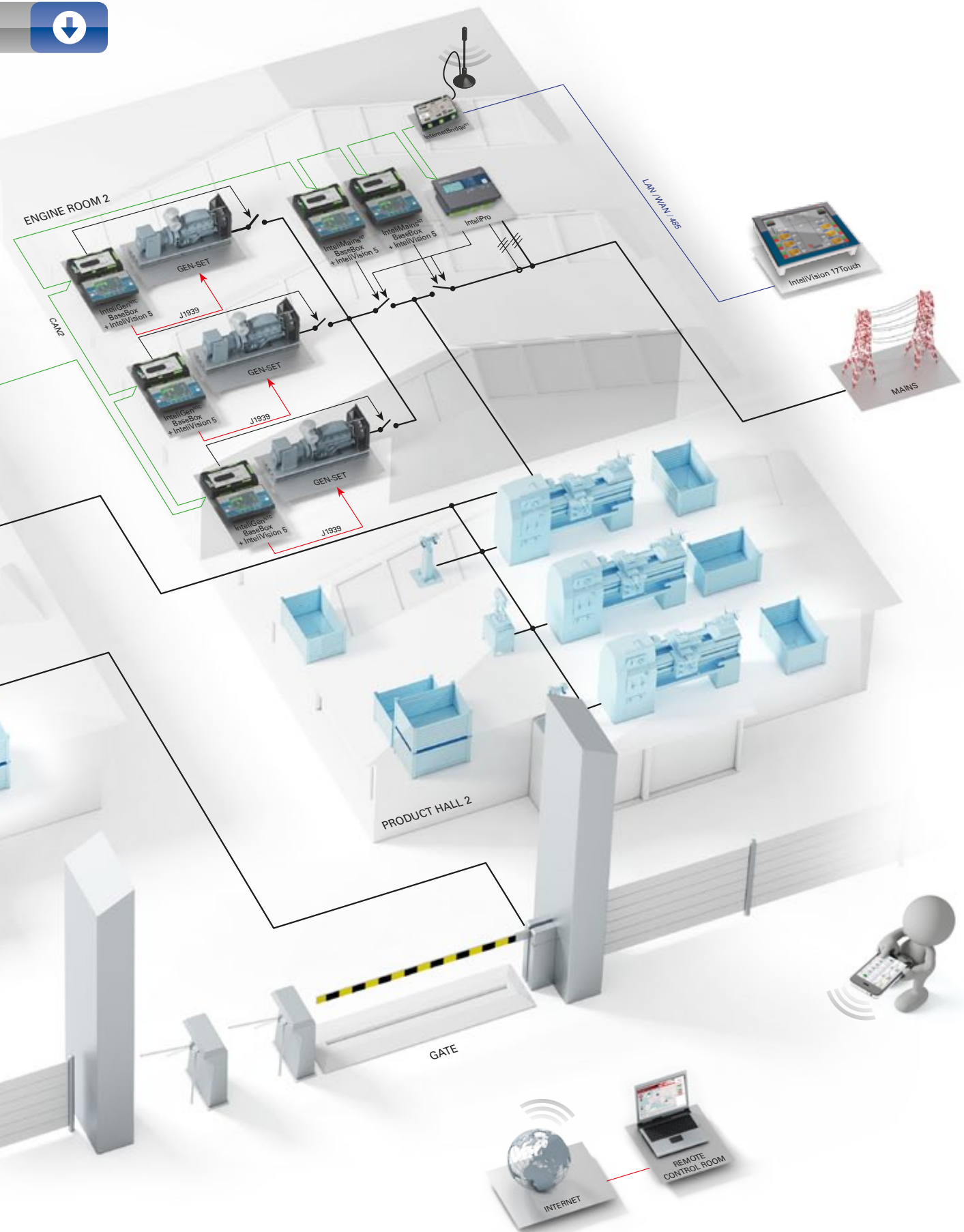
- IntelliGen^{NT} or IntelliSys^{NT} controllers with IGS-NT-PSC and gen-set control software
 - IntelliGen^{NT} models: IntelliGen^{NTC} BaseBox, IntelliGen^{NT} BaseBox, IntelliGen^{NT}
 - IntelliSys^{NT} models: IntelliSys^{NTC} BaseBox, IntelliSys^{NT} BaseBox
- IntelliMains^{NT} controllers with IM-NT-M(G)CB and IM-NT-FDR software (depending on application and used controller)
 - IntelliMains^{NT} models: IntelliMains^{NTC} BaseBox, IntelliMains^{NT} BaseBox, IntelliMains^{NT}
- Accessories:
 - Displays:
 - Color models: IntelliVision 17Touch, IntelliVision 8, IntelliVision 5 RD, IntelliVision 5
 - Monochrome models: IS-Display, IG-Display LT GC
 - Communication modules: InternetBridge-NT, I-LB+

Complex installation - multiple grids



Description:

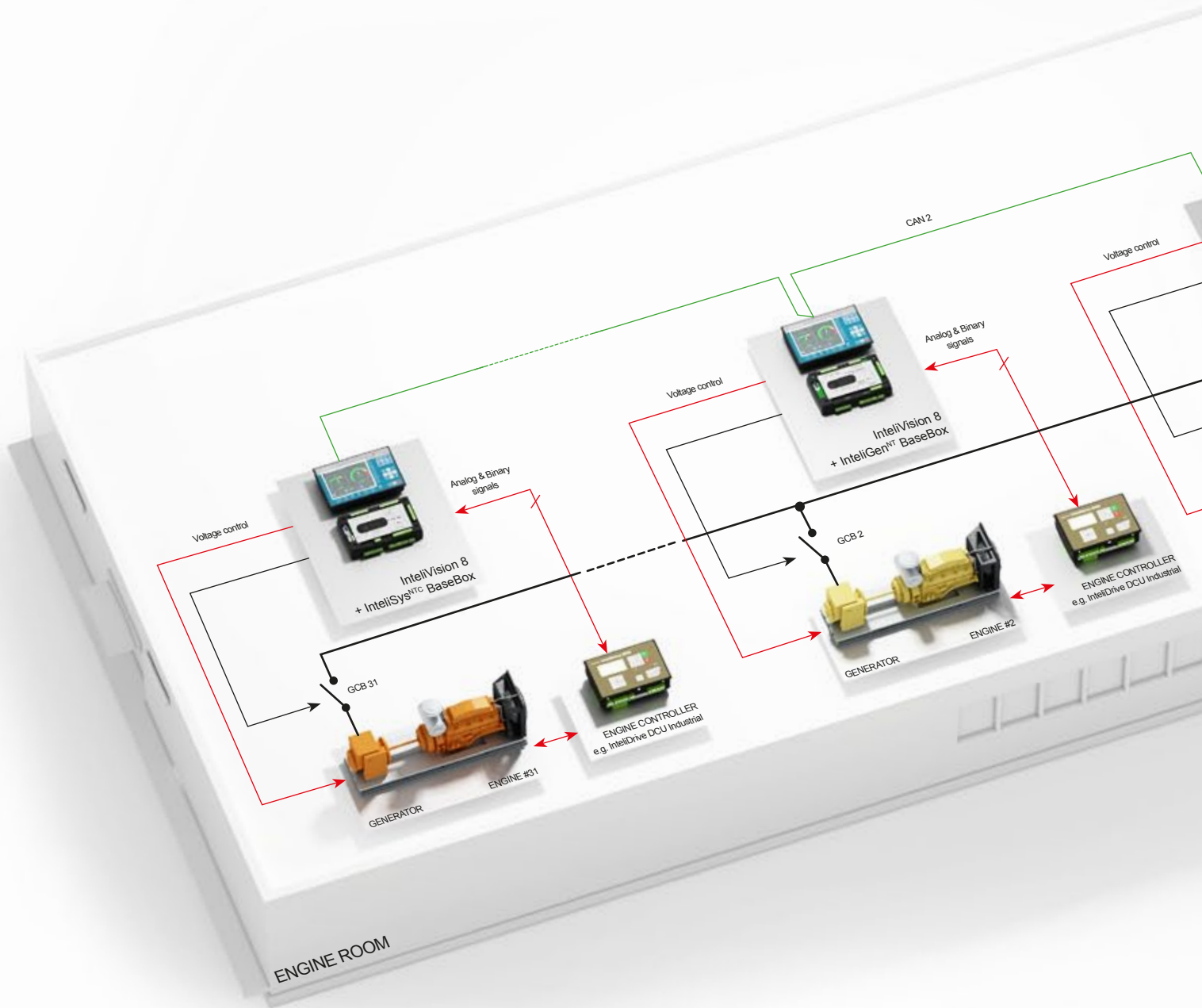
- Essential load is fed by two mains feeders during normal operation to achieve maximum reliability of the power delivery. Bus-tie breaker (BTB) is closed.
- The built-in PLC may contain a complex switching algorithm that determines which breakers are open and closed based on user requirements and current situation (gen-set availability, Mains status etc.).
- Reverse synchronizing on both feeders and on bus-tie breaker is accomplished by 5 InteliMains^{NT} modules.
- Active and reactive load-sharing can operate in two modes:
 - Sharing the load between all running gen-sets - if BTB is closed
 - Sharing the load in two independent groups - if BTB is opened
- Automatic power dependant start/stop can operate in two modes as well:
 - Running on all gen-sets - if BTB is closed
 - Running in two independent groups - if BTB is opened
- All controllers are interconnected by one CAN bus all the time, disregarded if BTB is closed or open, no need for relays reconnecting the CAN bus.
- Complete system is remotely controlled and supervised from Control room connected via company LAN and InternetBridge-NT to all controllers.
- InteliPro and InteliMains^{NT}, both with their own integrated mains protections, offer users in combination the reassurance of two-level protection.
- InteliMains^{NT} features numerous system control options in Parallel to Mains operation. This product offers Internal and External Baseload control with Export limitation, Internal and External Import/Export control and Load control based on measured system temperature.



Scope of supply:

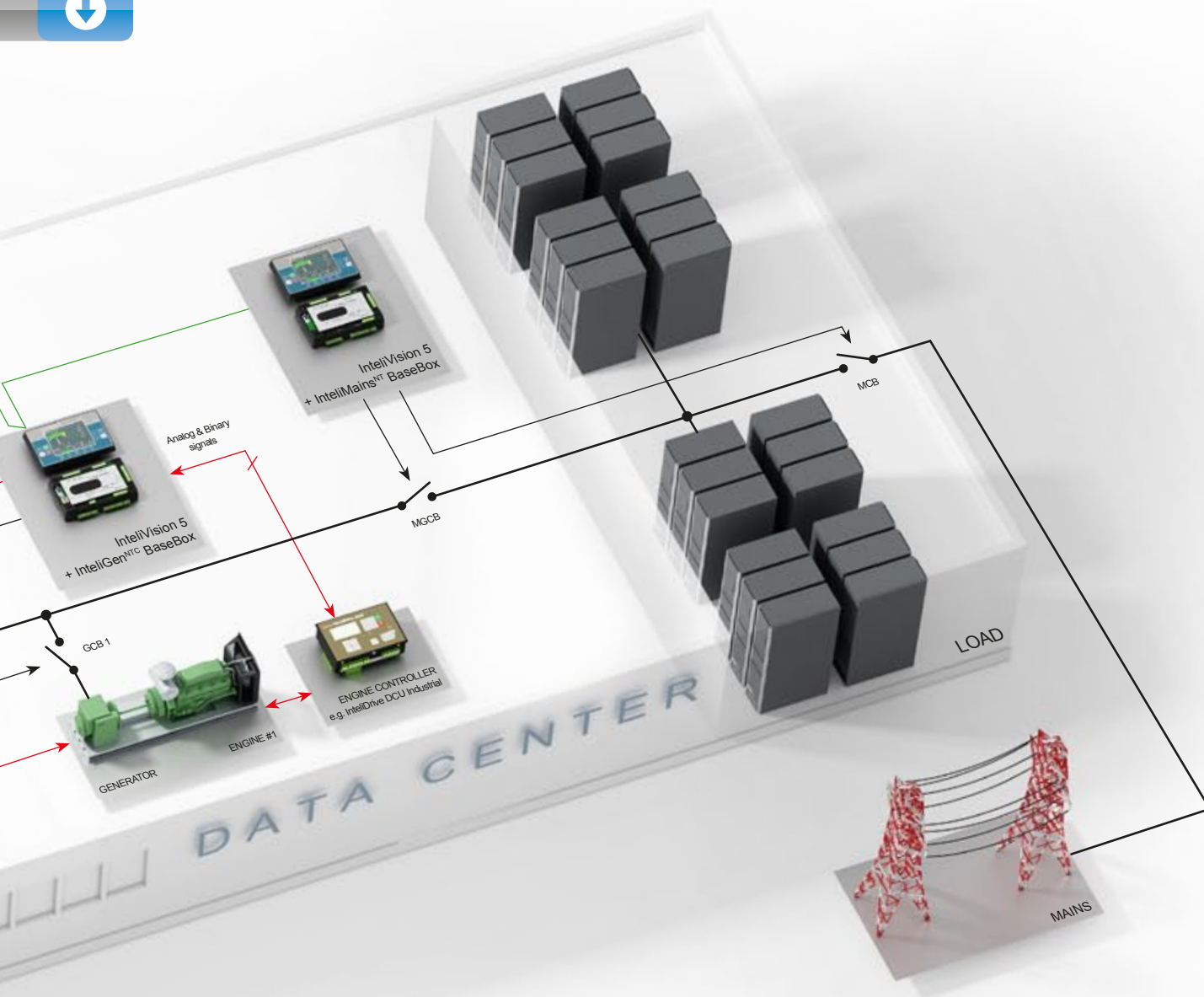
- 3x IntelliGen^{NTC} BaseBox
- 3x IntelliSys^{NTC} BaseBox
- 5x IntelliMains^{NT} BaseBox
- 2x IntelPro
- 8x IntelliVision 5
- 3x IntelliVision 8
- 1x IntelliVision 17Touch
- 1x InternetBridge-NT
- 6x IG-AVRi
- 6x IG-AVRi-TRANS/LV
- 6x IGS-NT-LSM+PMS dongle

Land-based application



Description:

- Typical use of GeCon software is on sites, where are several kinds of engines (various producers) and the customers need to have over all control off all gen-sets.
- Some engines have their own engine control unit (e. g. IntelliDrive DCU or PCC) and can not install standard IntelliGen^{NT} or IntelliSys^{NT} controller.
- At the engines with engines control unit (e. g. IntelliDrive DCU) is used IntelliGen^{NT} or IntelliSys^{NT} controller with sw GeCon which causes possibility to connect this gen-set e.g. to the gen-sets with IntelliGen^{NT} or IntelliSys^{NT} controller with standard software or the next engines from different producers with GeCon controller.
- Generators are controlled by GeCon controllers in (MINT) configurations.
- With this we can control all gen-sets and use power management and all features of IntelliGen^{NT} or IntelliSys^{NT} controller.
- GeCon controllers have the following modes:
 - MAN-synchronizing and load-sharing is automatic; genset start/stop in manual
 - AUTO-complete automatic control
 - Power Management System continuously evaluated load reserve on the bus and control of all working gen-sets throughout installation.



Controller options:

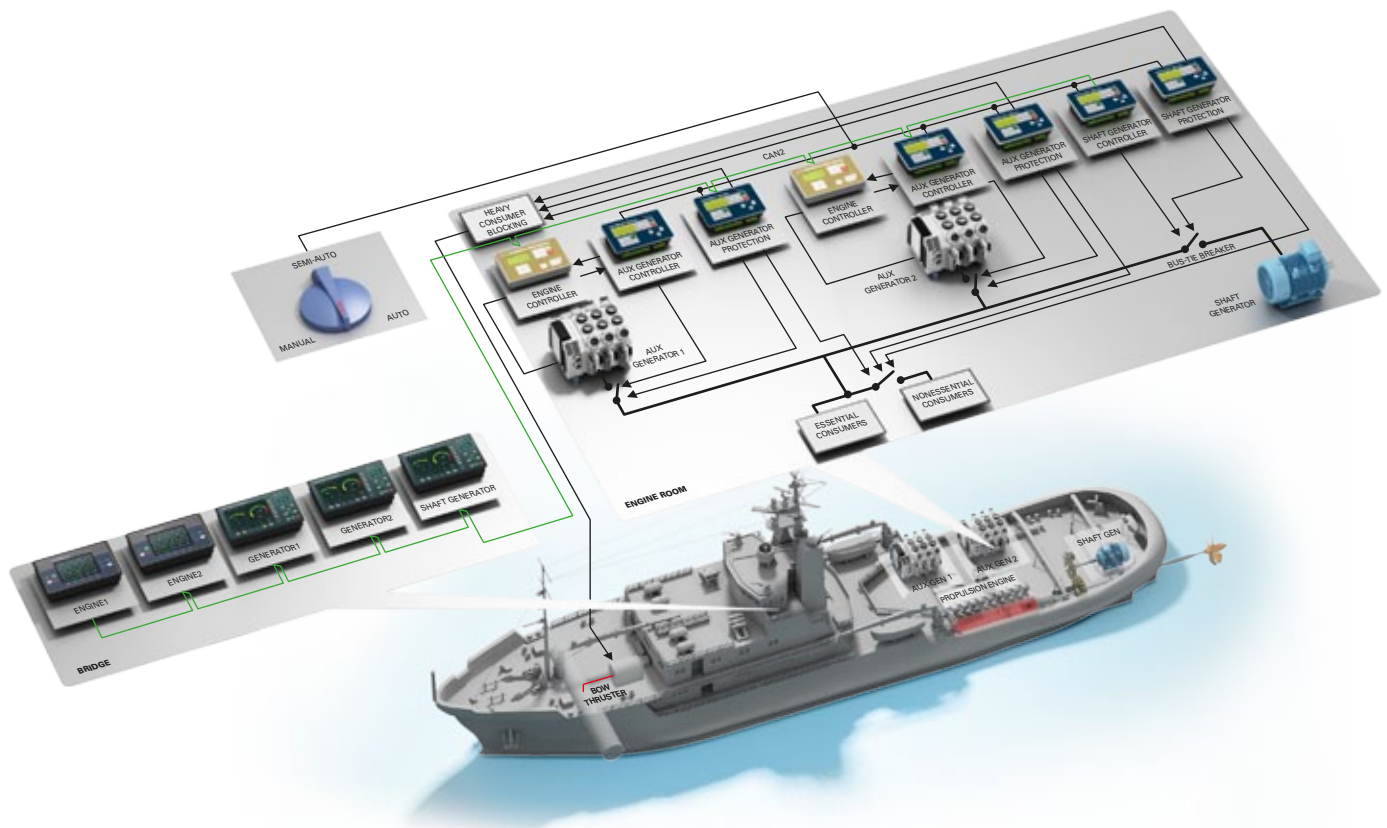
- IntelliGen^{NT} GeCon or IntelliSys^{NT} GeCon controllers with IGS-NT-GeCon-LandBased software
 - IntelliGen^{NT} GeCon models: IntelliGen^{NTC} BaseBox GeCon, IntelliGen^{NT} BaseBox GeCon, IntelliGen^{NT} GeCon
 - IntelliSys^{NT} GeCon models: IntelliSys^{NTC} BaseBox GeCon, IntelliSys^{NT} BaseBox GeCon

Upgrade kits:

- IGS-NT-LSM+PMS dongle or IGS-NT-GECON-LSM+PMS dongle for sw version IGS-NT-GeCon-Marine 3.0 and higher or IGS-NT-GeCon-LandBased 3.0 and higher
 - Load Sharing and Power Management for MINT and Combi applications
- IGS-NT-GECON-LSM+PMS dongle for sw version IGS-NT-GeCon 2.1 and lower
 - Load Sharing and Power Management for MINT and Combi application
- IGS-NT-GECON-PCM dongle for sw version IGS-NT-GeCon 2.1 and lower
 - Enables GeCon sw to run on the controller single parallel with mains in SPI, SPtM and PROT(for marine version only) applications



Ship power management system



Description:

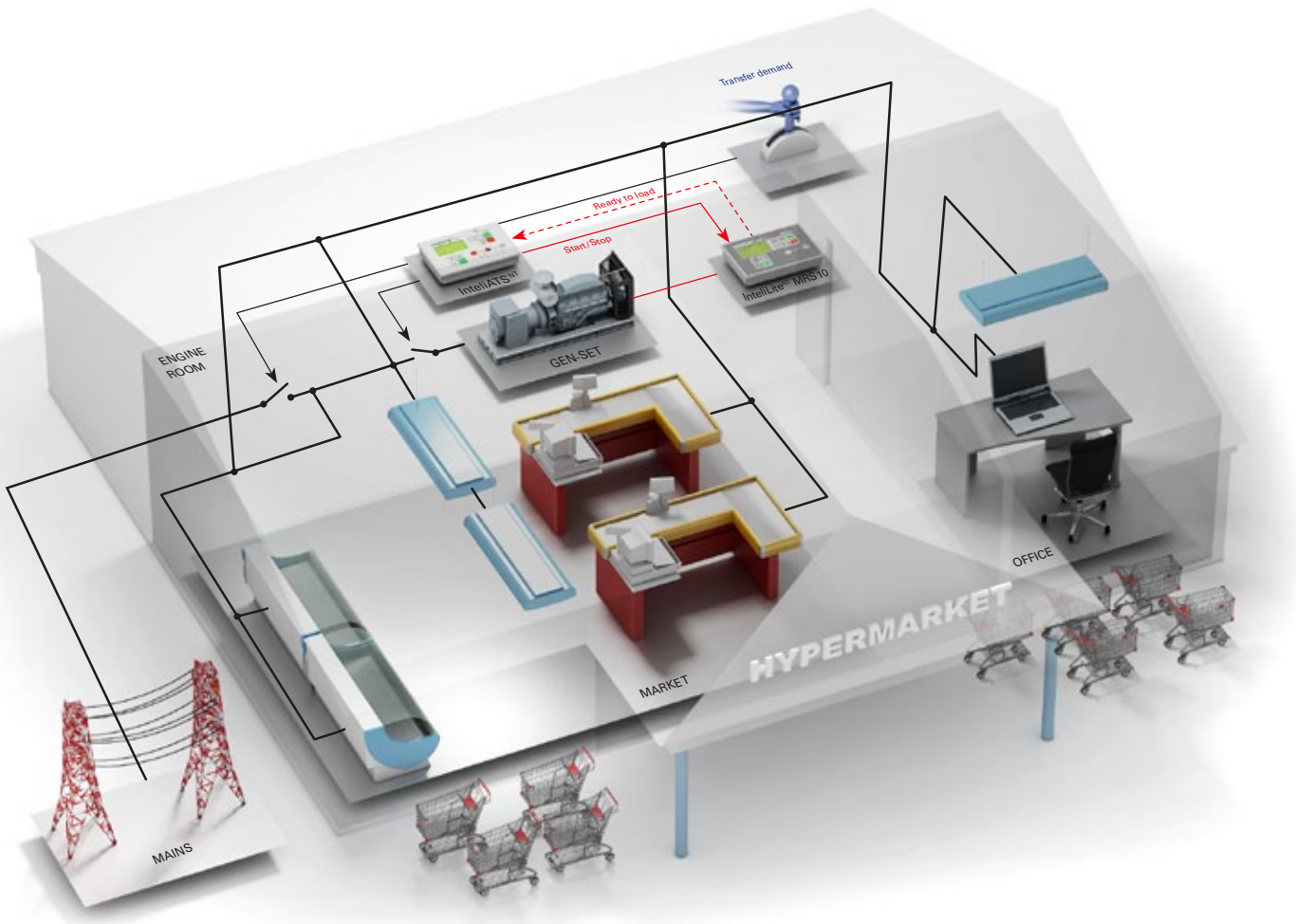
- Two auxiliary generators and one shaft generator deliver electricity for systems of the ship. Generators are controlled by GeCon software in MINT configurations.
- Controllers can work in three basic operational modes:
 - MANUAL – controller does not control the generator, options switch off/on of protections
 - SEMI-AUTO – synchronizing and load-sharing is automatic; genset start/stop and load transfer between aux and shaft generators in manual
 - AUTO – complete automatic control
- Power management system continuously evaluates load reserve on the bus and blocks start of the bow thruster if the load reserve is insufficient.
- Load shedding automatically trips the non-essential systems, if the power system is overloaded.
- Load shedding can control up to 10 independent circuits of non-essential systems.
- Freely programmable built-in PLC functions are used to accomplish load transfer between shaft and auxiliary generators.
- Marine approved by DNV, GL, Lloyd's Register and CRS.

Scope of supply:

- 6x IntelliGen^{NT} Marine GeCon
- 2x IntelliDrive DCU Marine
- 3x IntelliVision 8 Marine
- 2x IntelliVision 5 CAN Backlit
- 6x IG-AVRi
- 6x IG-AVRi-TRANS/LV



Open/delayed transition – auto/manual transfer



Description:

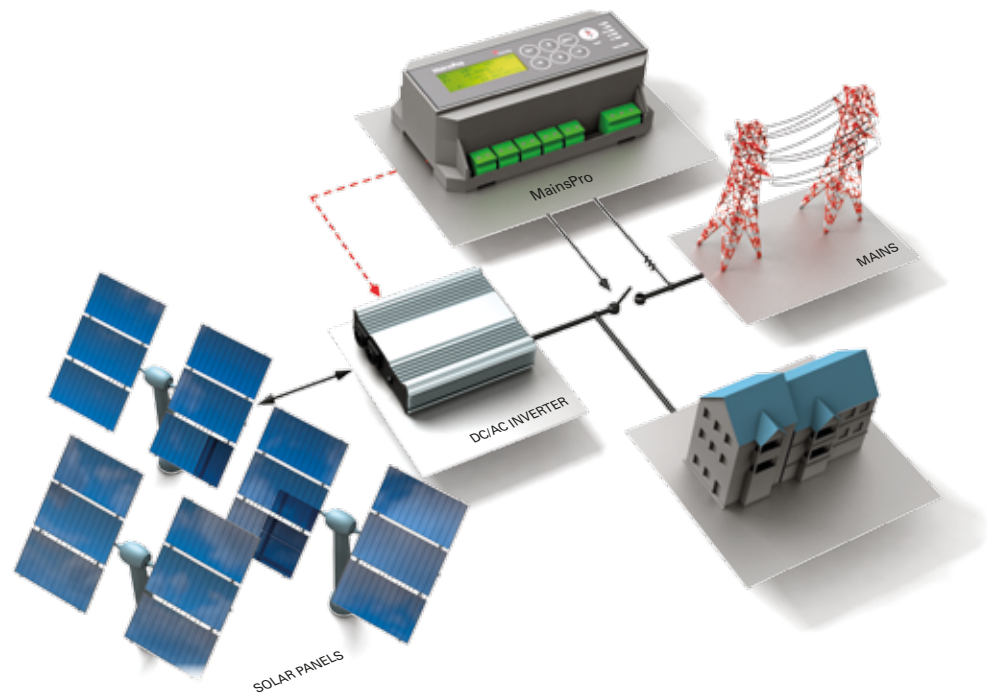
- Stand-by gen-set. IntelATS^{NT} continuously monitors mains supply for under voltage, over voltage, under frequency, over frequency and voltage unbalance. In the case of mains failure it sends a remote start command to the standby gen-set.
- IntelATS^{NT} waits for "Ready To Load" signal or standby gen-set voltage – configurable – and switches load to the standby generator.
- After the mains returns the IntelATS^{NT} switches load back to mains and sends remote stop command to the standby gen-set.
- Different delay intervals can be set for individual changeover phases.
- The changeover can take place also on explicit demand, not only after mains failure.
- ATS function works with backup battery or in reduced mode without backup battery.

Scope of supply:

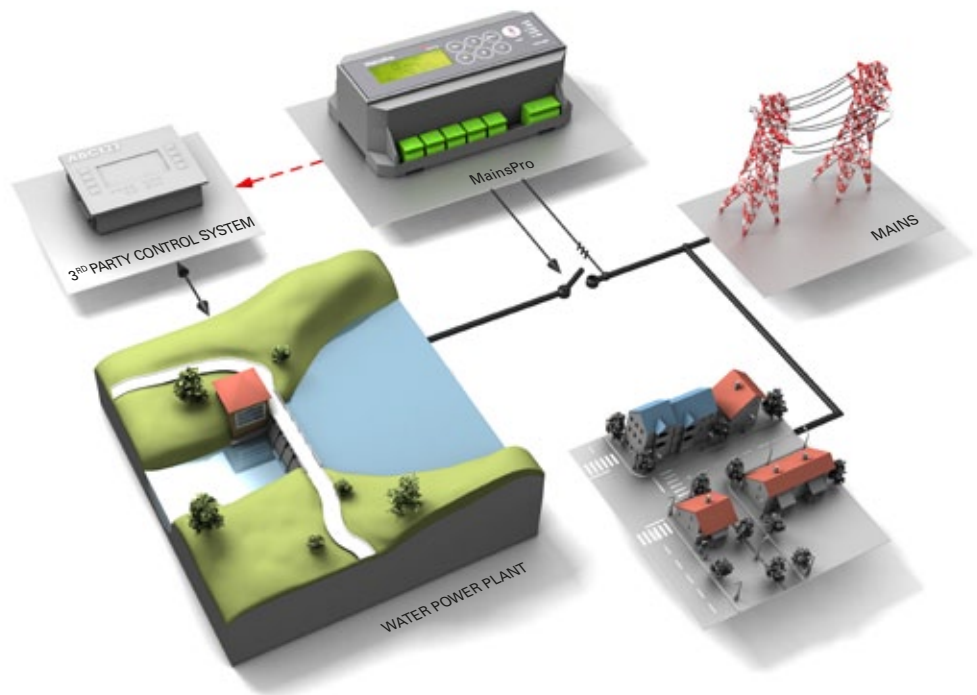
- 1x IntelATS^{NT} STD
- 1x arbitrary gen-set controller (e.g. IntelLite^{NT} MRS 10) or key start box



Solar



Water



Description:

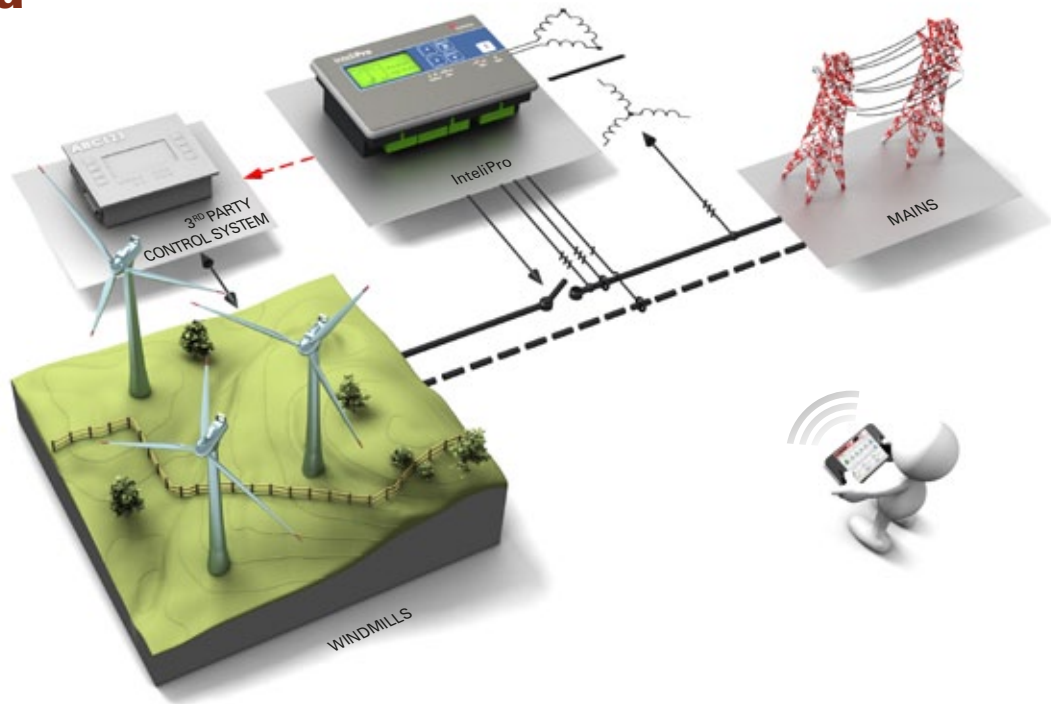
- For higher operation reliability and safety, parallel-to-mains applications should be equipped with mains protections
- Mains protection prevents the mains as well as the generator from damage due to unexpected disturbances
- ComAp protection relays are suitable for any generator sets, renewable source of energy or combined heat and power application
- MainsPro provides adjustable two level voltage, frequency and loss of mains protection
- ComAp mains protections are precise and effective protection relays with user-friendly interface and intuitive operation

Scope of supply:

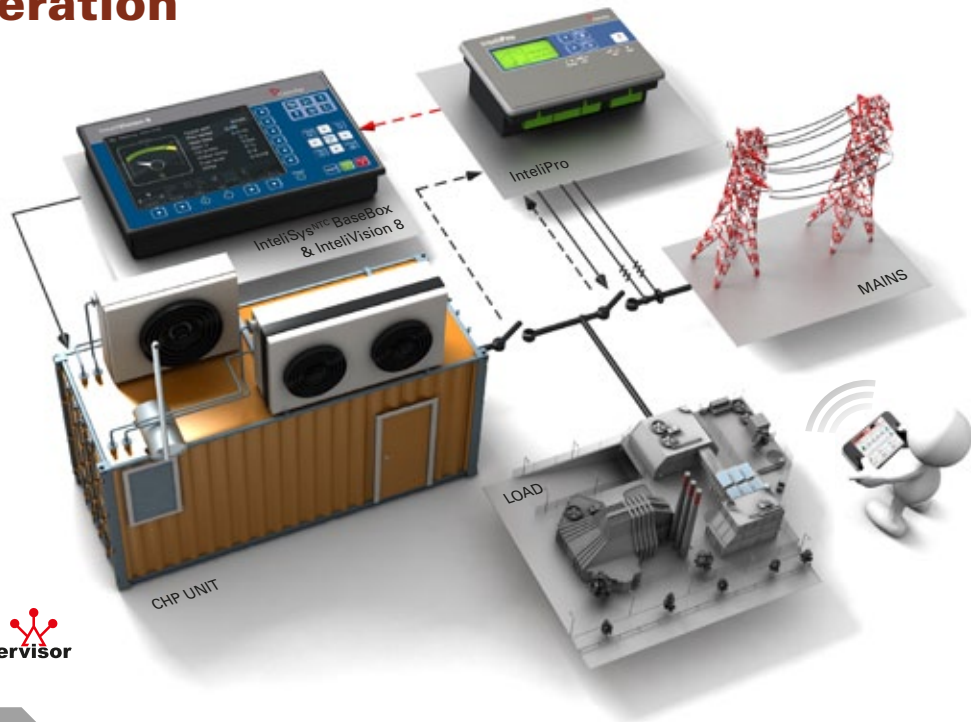
- 1x MainsPro (it is possible to use also IntelliPro)



Wind



Cogeneration



Description:

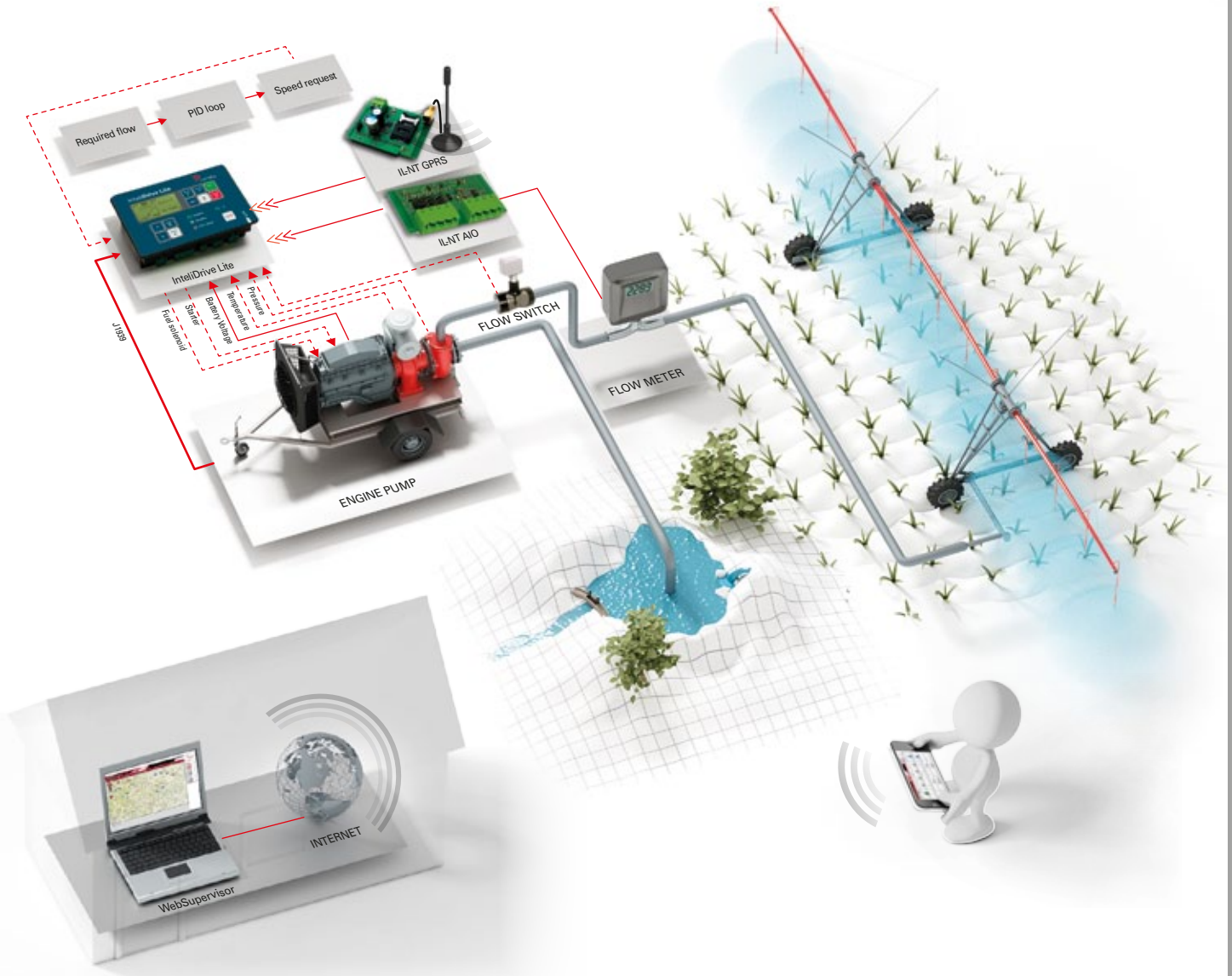
- On more complex applications requiring data exchange or remote access IntelliPro mains protection is recommended
- IntelliPro is highly flexible protection relay with wide range of adjustable protection functions according to the site requirements
- IntelliPro provides adjustable two level voltage and frequency protection, current measurement, loss of mains protection, earth fault current, neutral voltage displacement, etc.
- Advanced protection relay supporting plug-in-module concept offering variety of means of communication

Scope of supply:

- 1x IntelliPro



Irrigation pump system



Description:

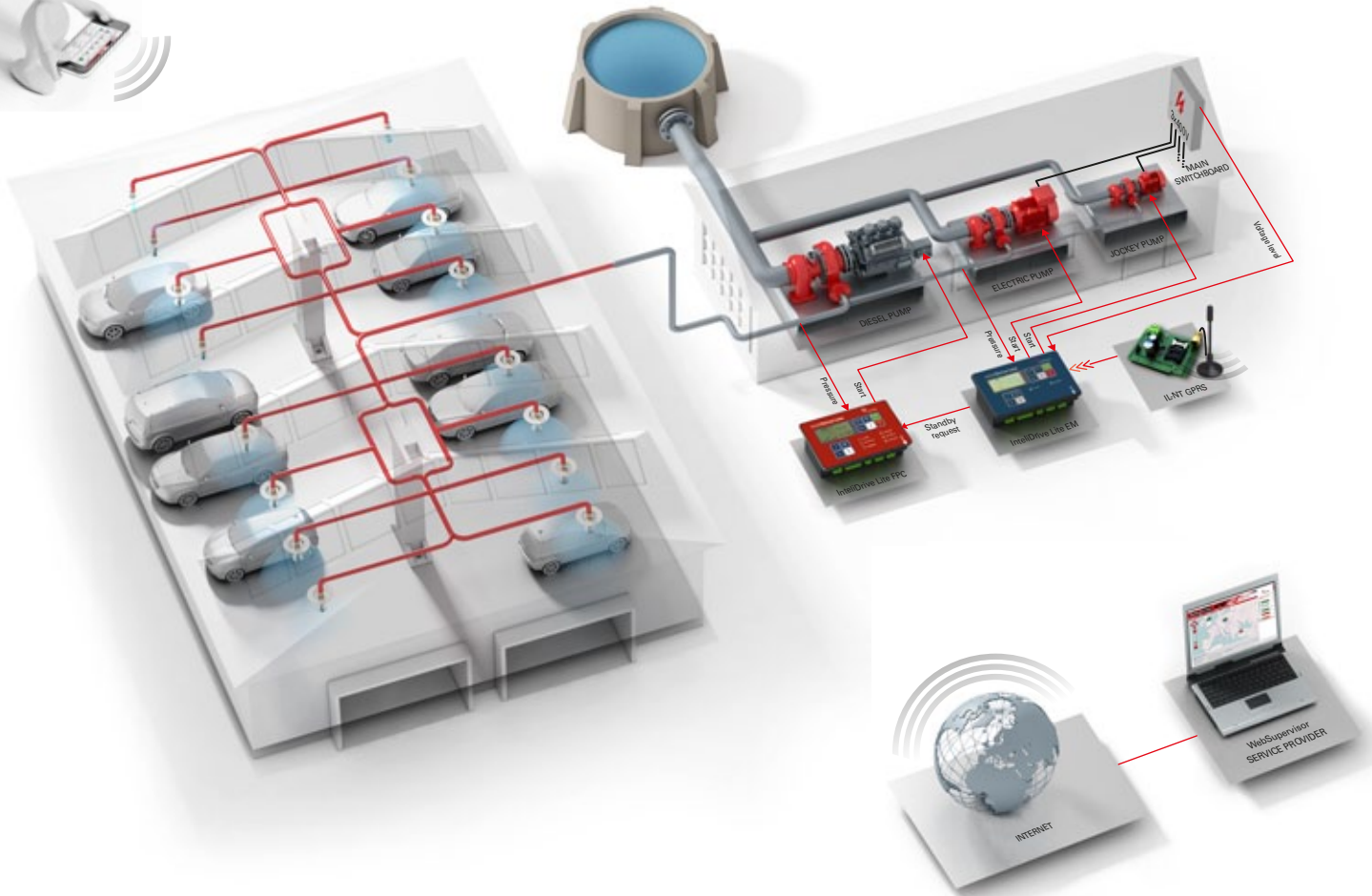
- Irrigation pump is driven by combustion engine.
- IntelliDrive Lite makes complete controls, monitoring and protection of the engine.
- Water flow from a pump is measured by flow-meter. IntelliDrive Lite controls variable speed engine, which enables to change water flow according momentary need.
- IntelliDrive Lite protects engine against overload via engine load limitation function based on Load information from ECU.
- The system status and required flow is monitored and adjustable via GPRS communication module from a central supervision point via integrated and enhanced PLC logics, as well as the engine-speed load is controlled via PID-loops.
- The advanced bi-directional CAN-Bus communication helps simplify the wiring to the engine.

Scope of supply:

- 1x IntelliDrive Lite
- 1x IL-NT AIO
- 1x IL-NT GPRS
- 1x Flow-meter (not delivered by ComAp)



Firepumps



Description:

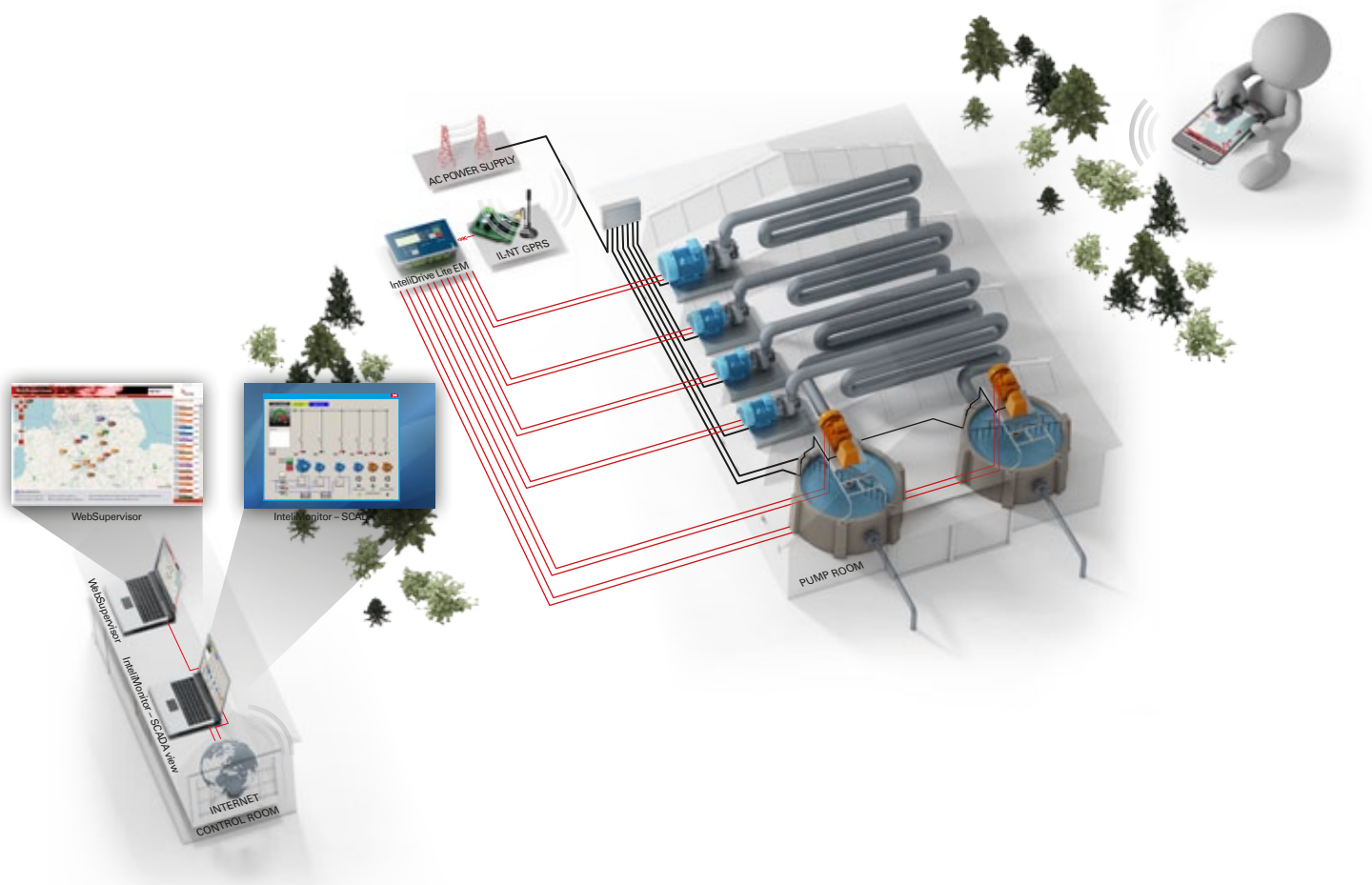
- Fire pump system is driven by combustion engine or by electric motor with combustion engine
- Function of the controller is based on NFPA 20 standard
- IntelliDrive Lite FPC is able to make complete control, monitoring and protection of engine in manual mode and control and monitoring in automatic mode
- IntelliDrive Lite EM is able to make complete control, monitoring and protection of motor and control and monitoring in automatic mode
- Depend on the smoke sensor or on the sprinkler system pressure is started combustion engine or electric motor
- The controller allows regular testing of system
- Firmware version of IntelliDrive Lite FPC enables to control complete system with diesel, electric and jockey pump in one
- Possibility of central supervision via remote control
- Support AirGate, WebSupervisor, Webserver, ECU etc.

Scope of supply:

- 1x IntelliDrive Lite FPC
- 1x IntelliDrive Lite EM
- 1x IL-NT GPRS



Pump system with Electric motor



Description:

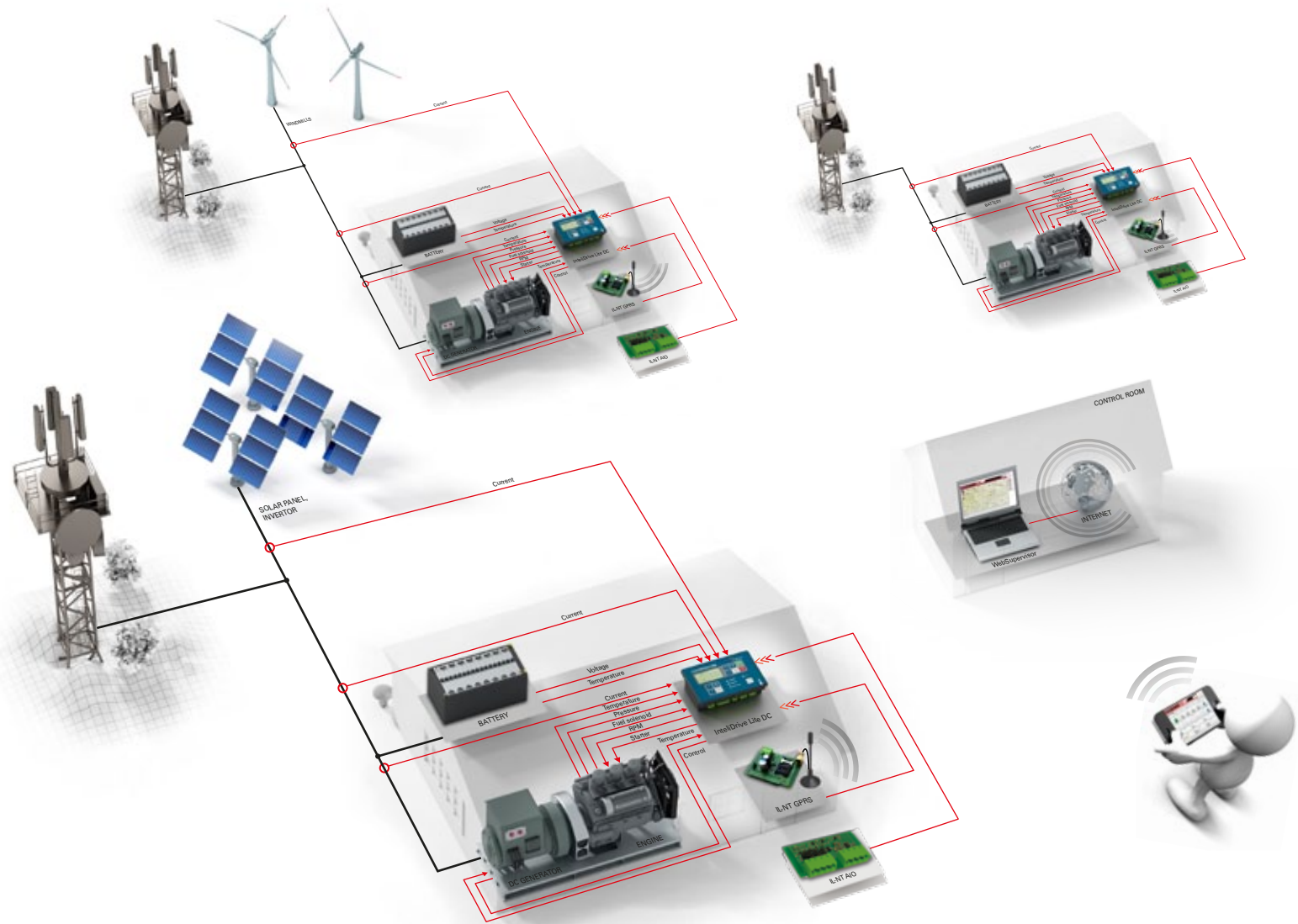
- Pump system is driven by electric motors.
- InteliDrive Lite EM makes complete control and monitoring of the motors.
- The arigators are mixing injected chemical substance for purification of water. The arigators are switched from control room by InteliDrive Lite EM controller and its binary outputs. Can be affected by timers adjustment.
- Depends on the pressure in the pipe system, which is measured by sensors through InteliDrive Lite EM and displayed in InteliMonitor SCADA system, are started centrifugal pumps. Centrifugal pumps with electric motors are used for distribution of water in and out of system.
- This application of water purification system can be controlled by six InteliDrive Lite EM controllers for full protection of each electric motor and with variable ways of starting or by one InteliDrive Lite EM controller with full protection system only for the main electric motor and with limited protection for the rest of electric motors, in this case, up to six electric motors can be started directly.

Scope of supply:

- 1x (up to 6) – InteliDrive Lite EM
- 1x (up to 6) – IL-NT GPRS



DC generator for Off-Grid power systems



Description:

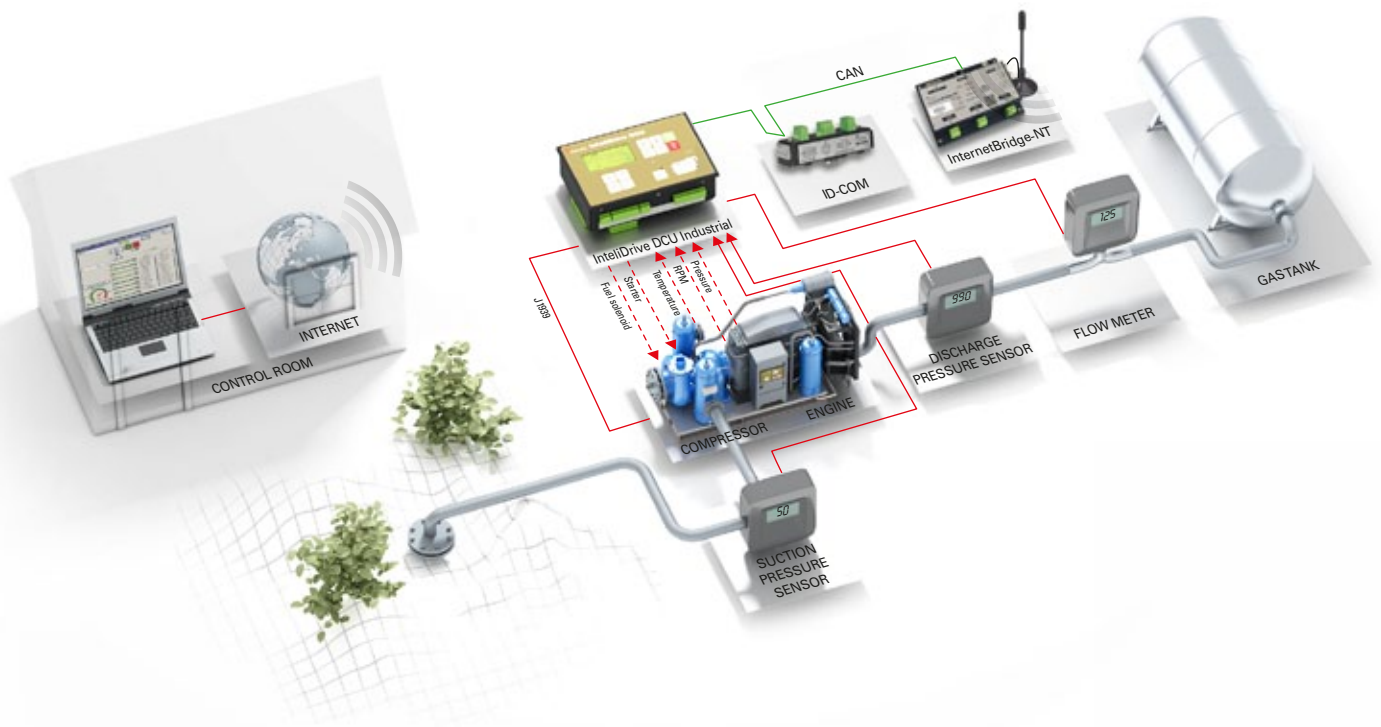
- Batteries are in most cases the only one source of energy for Off-Grid telecom BTS (Base Transceiver Station) equipment. Batteries are charged by DC (Direct Current) generator – Hybrid solution.
- InteliDrive DC controller makes complete monitoring, control and protection of the whole Hybrid system. Charging algorithm implemented in InteliDrive Lite DC controller uses the DC generator output most effectively by variable engine speed control (less power requirement = lower RPM = lower consumption).
- Hybrid system can be extended with other especially renewable energy sources (Solar panel, Wind Turbine, Fuel Cells etc.). InteliDrive Lite DC ensures to be all energy sources utilized effectively with respect to reliability, battery life time, fuel consumption and floating load.
- Remote monitoring of the whole system ensures mineralization of operational costs (OPEX).
- Automatic mode starts the Generator once battery bank voltage drops under critical limit and charges the battery back to maximum possibly capacity.

Scope of supply:

- 1x InteliDrive Lite DC
- 1x IL-NT AIO
- 1x IL-NT GPRS



Gas compressor



Description:

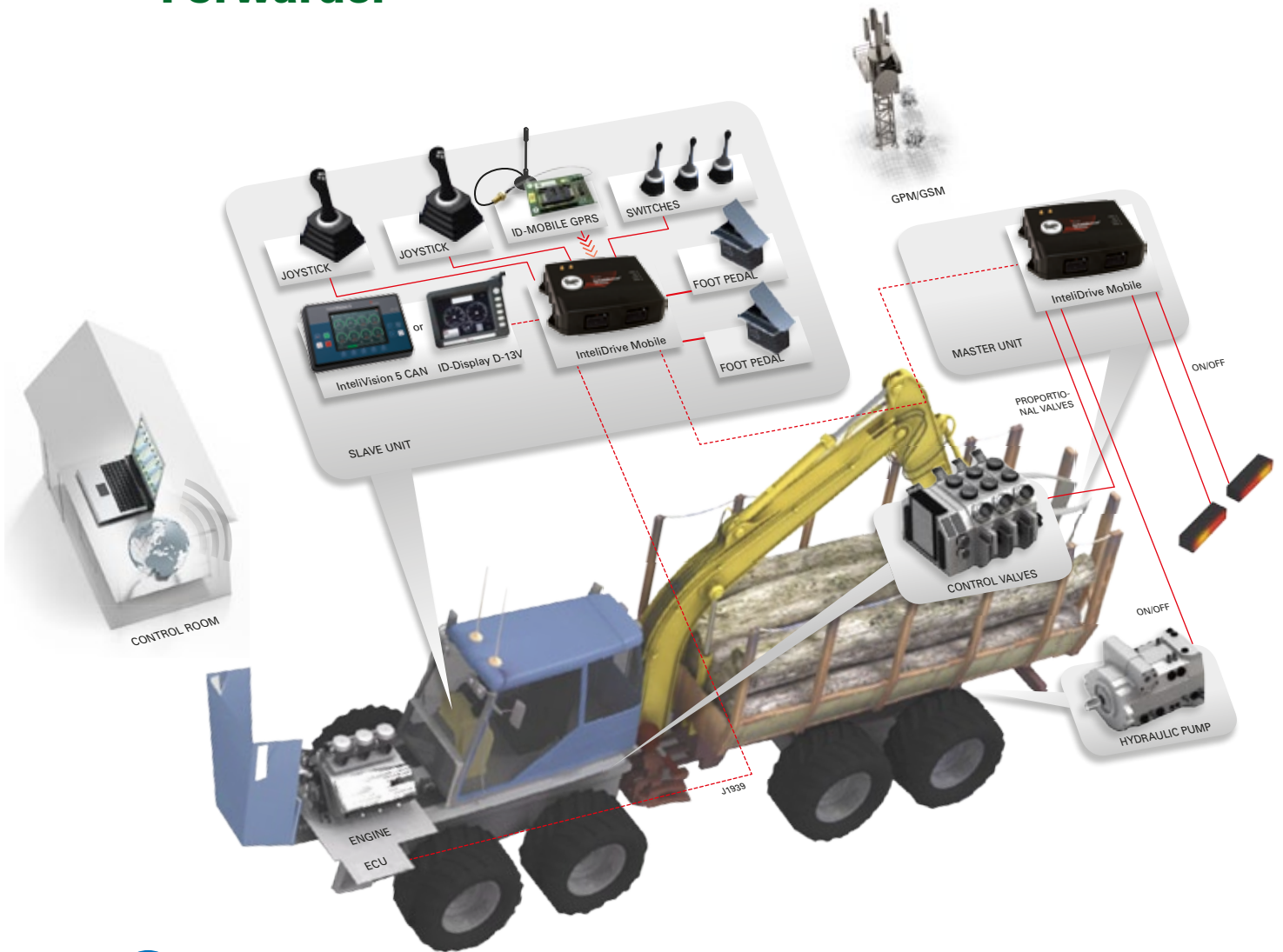
- Gas compressor is driven by a combustion engine.
- IntelliDrive DCU Industrial makes complete control, monitoring and protection of the engine and compressor.
- Sophisticated control algorithm using build-in PLC modules accomplishes optimal running conditions for the compressor.
- Speed of the engine is determined according to the suction and discharge pressures of the compressor.
- Additional unload and by-pass valves are controlled by IntelliDrive DCU Industrial in dependence on both suction and discharge pressures.

Scope of supply:

- 1x IntelliDrive DCU Industrial
- 1x InternetBridge-NT
- 1x ID-COM
- 1x ID-SCM



Forwarder



Description:

- Forwarder application – where electronic engine drives hydraulic pump and produces high-pressure oil for driving manipulator.
- Two IntelliDrive Mobile controllers are utilized in the application. The first one – Slave unit located in the driver’s cabin receives commands from the driver via joysticks, foot pedals and various switches. Large color screen together with a few pilot lights gives complete information and machine status. The second IntelliDrive Mobile – Master unit located on the machine frame controls and monitors the engine and hydraulic control valves.
- Communication between the two IntelliDrive Mobile controllers and the on-board color screen is via CAN line. This makes the system wiring and integration very simple.
- All values, warnings and fault codes from the engine are displayed on the on-board color screen.
- GPS module allows geofencing function – protecting machine against the stealing or unauthorized use. SMS or e-mail warning is sent in such case.
- GPRS Module allows monitoring machine activities or status of vehicle.

Scope of supply:

- 1x IntelliDrive Mobile (Master unit)
- 1x IntelliDrive Mobile (Slave unit)
- 1x IntelliVision 5 CAN or ID-Display D-13
- 1x ID-Mobile GPRS
- 1x GPRS/GPS Antena
- Customized Harness



Dump Truck - Data Logging



Description:

- Mining Dump Truck uses InteliDrive Mobile Logger for complete monitoring and data logging of the vehicle multi-controls system.
- InteliDrive Mobile Logger is designed for harsh environment meeting IP67 protection. The integrated control unit and harnesses concept makes the installation and production more simpler (no additional switchboard is needed).
- Required data from several control units (Engine control unit, Transmission control unit, Vehicle system unit and others) are via CAN bus and with analog and binary inputs collected and recorded in InteliDrive Mobile Logger unit. There can be up to 220.000 events recorded which enables to check recorded values months backward.
- ID-Mobile GPRS module makes possible remote connection to the unit via AirGate. Combination with ID-Mobile GPS module allows features related to a location of the machine (position, Geofencing etc.)

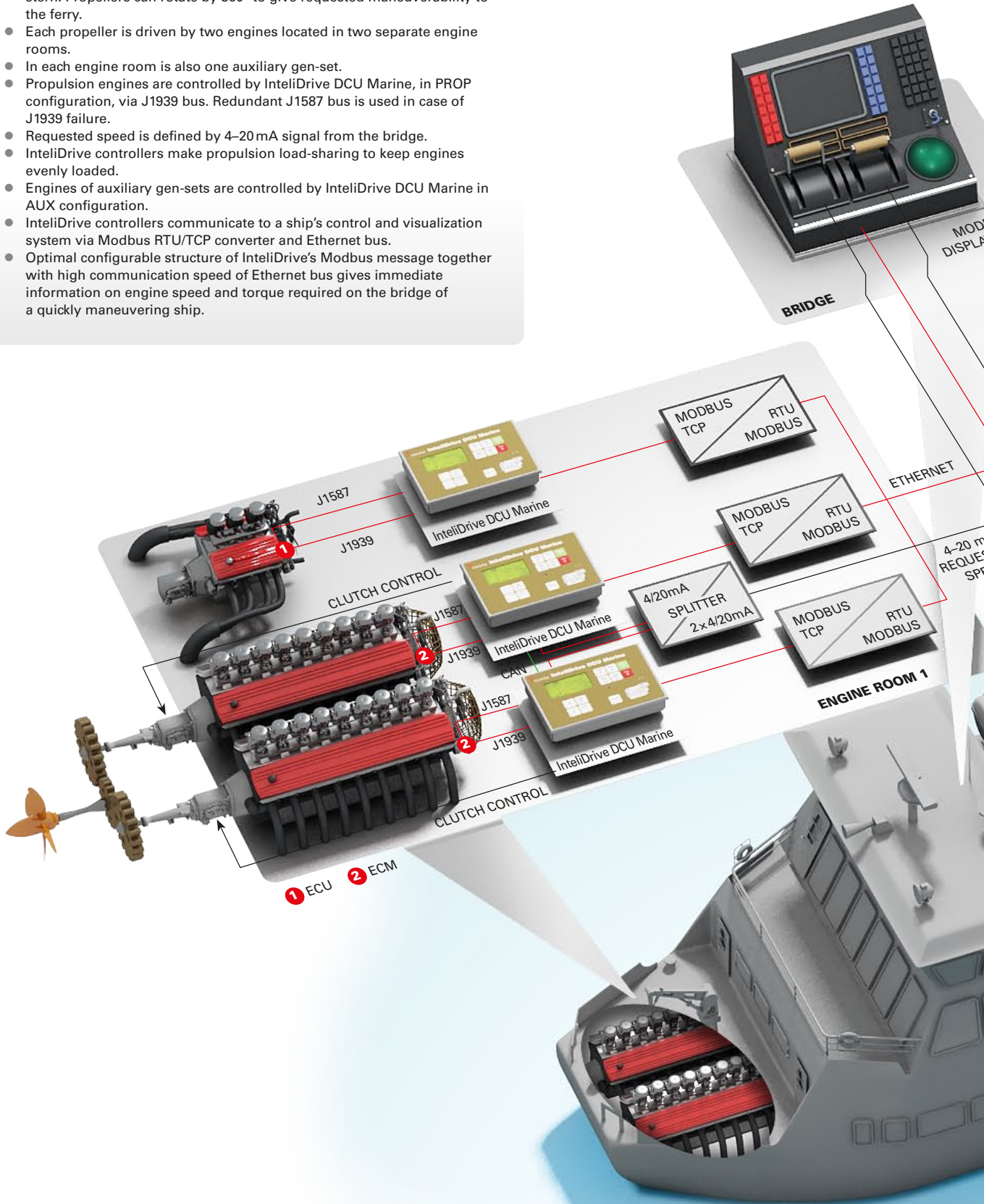
Scope of supply:

- 1x InteliDrive Mobile Logger
- 1x ID-Mobile Logger Harness
- 1x ID-Mobile GPRS
- 1x ID-Mobile GPS
- 1x GPRS/GPS Antena
- 1x InteliVision 5 CAN or InteliVision 8

Ship control system

Description:

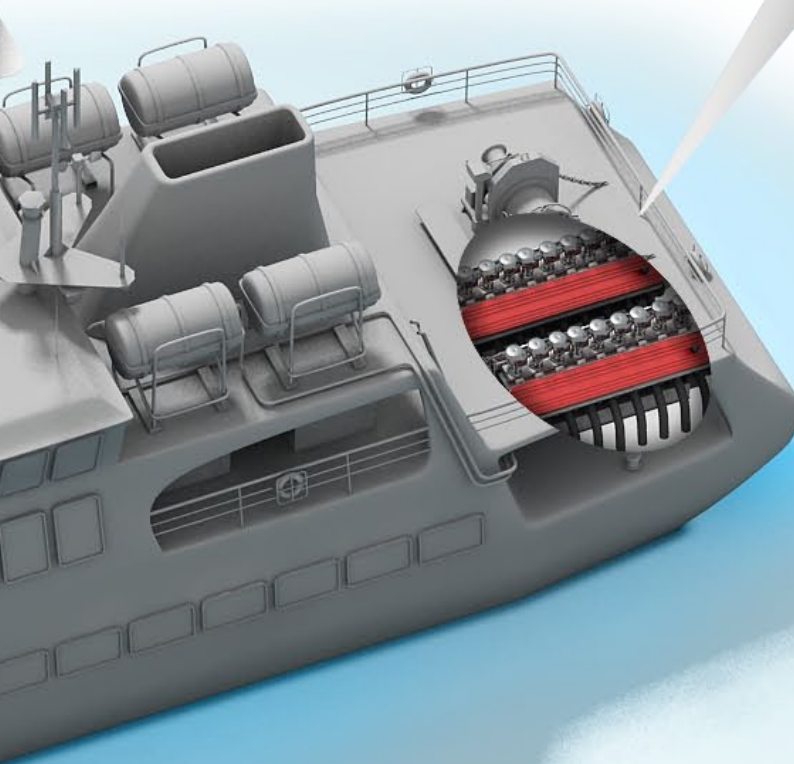
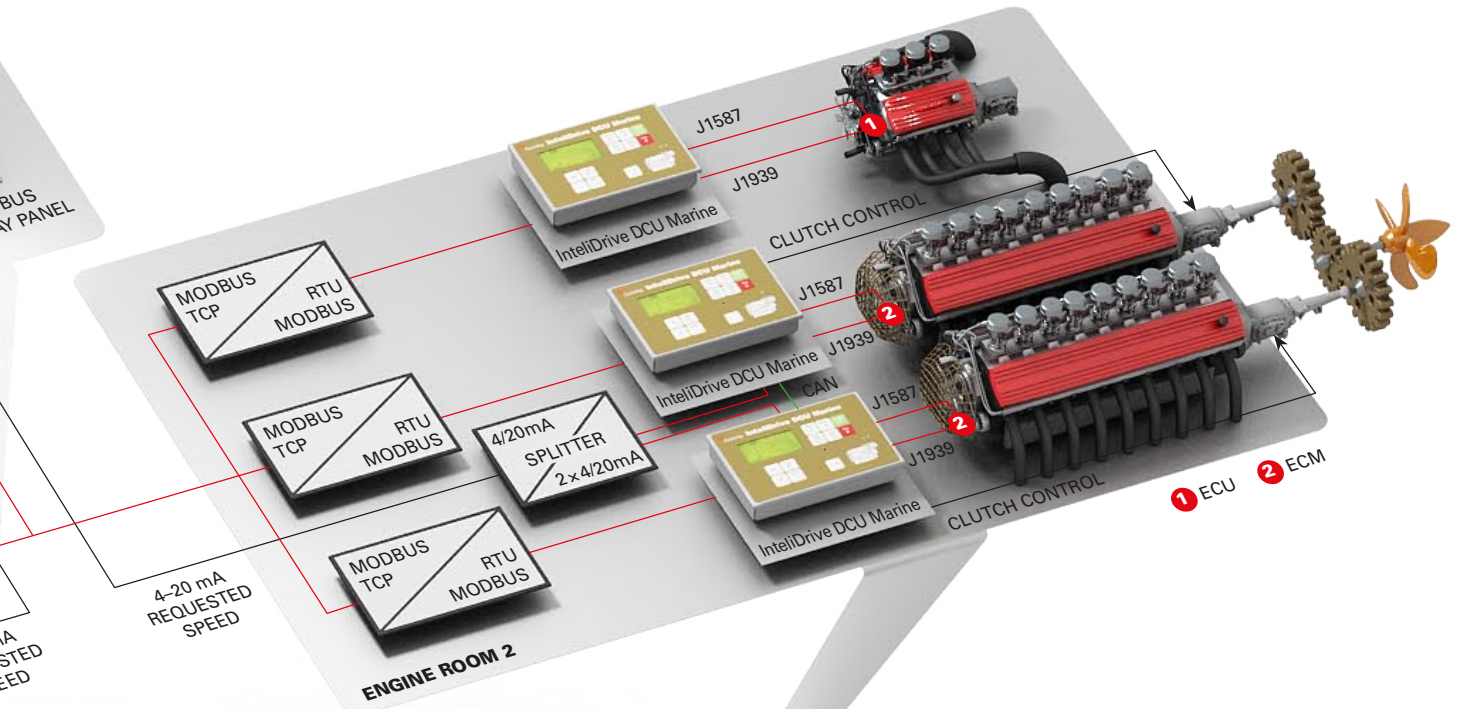
- Small ferries typically feature two propellers, one in bow and one in stern. Propellers can rotate by 360° to give requested maneuverability to the ferry.
- Each propeller is driven by two engines located in two separate engine rooms.
- In each engine room is also one auxiliary gen-set.
- Propulsion engines are controlled by IntelliDrive DCU Marine, in PROP configuration, via J1939 bus. Redundant J1587 bus is used in case of J1939 failure.
- Requested speed is defined by 4–20 mA signal from the bridge.
- IntelliDrive controllers make propulsion load-sharing to keep engines evenly loaded.
- Engines of auxiliary gen-sets are controlled by IntelliDrive DCU Marine in AUX configuration.
- IntelliDrive controllers communicate to a ship's control and visualization system via Modbus RTU/TCP converter and Ethernet bus.
- Optimal configurable structure of IntelliDrive's Modbus message together with high communication speed of Ethernet bus gives immediate information on engine speed and torque required on the bridge of a quickly maneuvering ship.





Scope of supply:

- 6x IntelliDrive DCU Marine
- 6x ID-RPU
- 4x ID-COM
- 6x Modbus RTU/TCP converter (not delivered by ComAp)

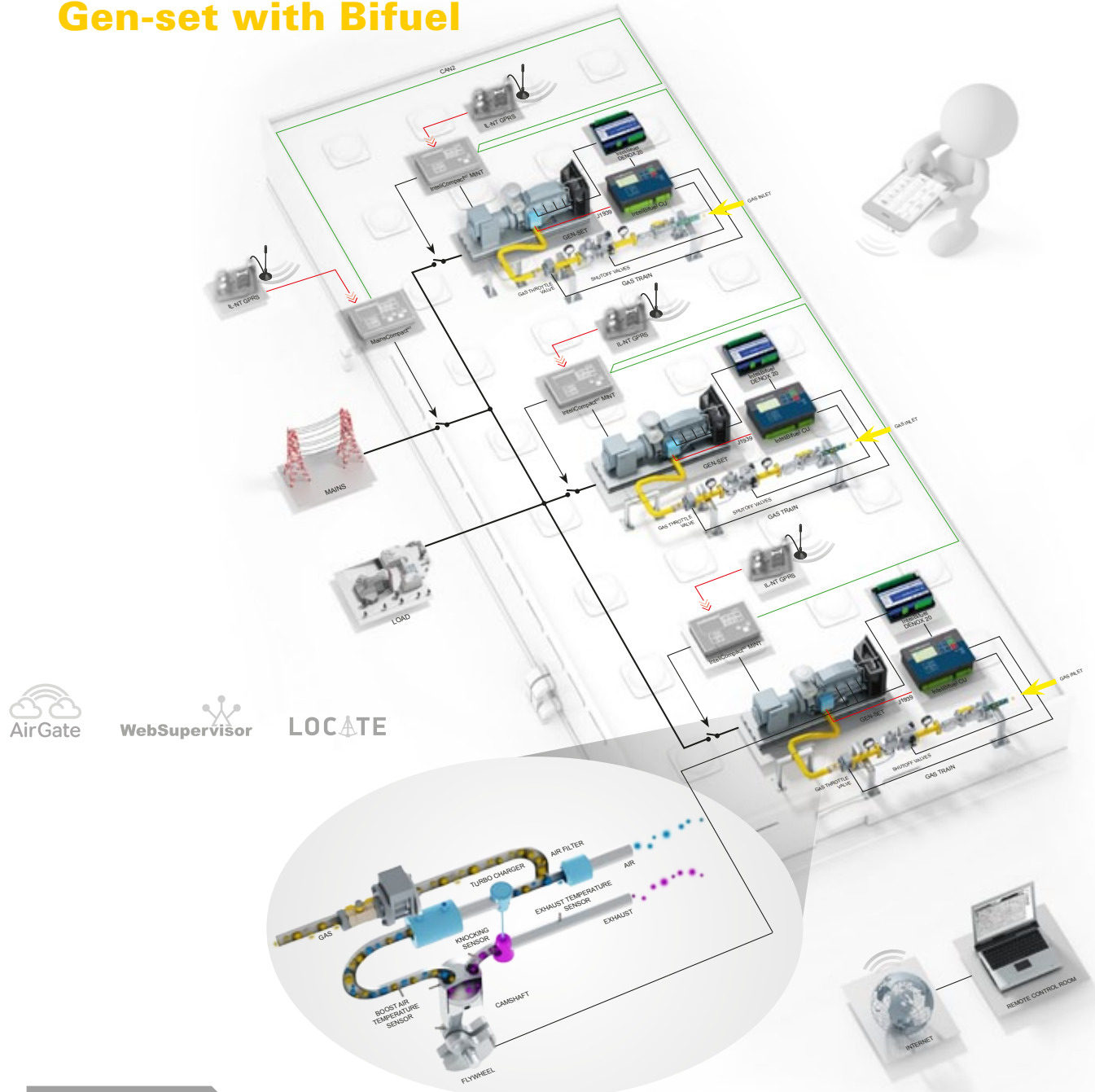


No ordinary engine controller features engine speed control, monitoring, propulsion load sharing. With IntelliDrive DCU Marine you get all this and more!





Gen-set with Bifuel



Description:

- IntelBifuel does not interfere with the existing gen-set / engine controller therefore the functionality of the current application remains the same after Bi-fuel conversion.
- The IntelBifuel conversion application is suitable for any type of gen-set/engine mode of operation (island, synchronization, paralleling).
- Financial savings are achieved via the substitution of up to 80% of the existing engines diesel consumption with gas (extended operating times without refuelling are also realized).
- IntelBifuel controllers offer fuel flexibility and seamless transition between diesel and Bi-fuel operation modes as required (e.g. in case that gas is not available).
- Various types of gases can be used as the substitute fuel: natural gas, well gas, landfill gas, coal gas, propane gas, biogas etc.
- Possible emission reductions of CO₂, NO_x, SO_x and PM can be expected compared to original 100% diesel operation.
- The IntelBifuel solution is a fully automatic solution which is mainly concerned with engine safety, gas is dynamically adjusted and optimised via a gas throttle valve.
- All parts and parameters of the Bi-fuel solution are monitored and accessible from a single point.
- Excellent remote monitoring features.

Scope of supply:

- 3x IntelBifuel CU
- 3x IntelBifuel DENOX 20

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

2012 UEFA European Football Championship (National stadium in Warsaw)



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.

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

F1 Singapore GrandPrix 2012





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 is proud to continue being one of the top companies in the

world, an achievement which is challenging to sustain, but something we endeavour to preserve. We consistently set high standards, and try to be the best, something which is reflected by our achievement in the 'Best Employers Study in the Czech Republic' (conducted by Hewitt Associates), where we were awarded first place in 2009.

And, amidst fierce competition, in 2011 we were delighted to be amongst the top five companies in the Czech Republic once again. Our passion for excellence pushes us ever forward, and you can be sure that whatever the future brings, we will be there.

Putting customers first

ComAp's expertise extends beyond innovative controllers, our key strengths are flexibility, experience, knowledge and enthusiasm, enabling us to successfully help our customers solve their problems quickly and effectively. Using our vast global distribution network with 24 hour technical support, and a free dedicated training centre in Prague, we are able to work closely with our clients, maintaining the highest level of satisfaction, something we are very passionate about, and constantly strive to achieve.



Key Milestones

1991

ComAp is established.

1993

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

1994

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

1996

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

2000

InteliGen, the first member of the Inteli family and flagship of their gen-set control systems, is released.

2001

ComAp Ltd. – The first foreign ComAp subsidiary is established close to Bristol.

2002

InteliSys, a top end product dedicated to CHP and large engine control applications, is released. New mid-range product InteliLite is launched for AMF and – InteliDrive controllers for non gen-sets, engine driven applications is released.

2006

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

2007

InteliVision 8 – the first color display unit in the power generation field.

2008

InteliCompact – controller for simple paralleling gensets is launched.

2010

InteliVision 5 and InteliGen^{NT} BaseBox controller concept are released.

2012

Application for Apple iOS devices and Google Android devices is launched allowing product control via smartphones and tablets.

Professional partnerships

ComAp's extensive global distributor network means that products are locally available in more than 100 countries, spanning every continent in the world. Through our professional and highly dedicated global distributor network we can satisfy customers' needs, however challenging.

Each ComAp distributor is carefully selected for their professionalism, product expertise and recognized quality standards and accreditation, and as such can advise customers on any matter relating to ComAp products and their applications.


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www.comap.cz

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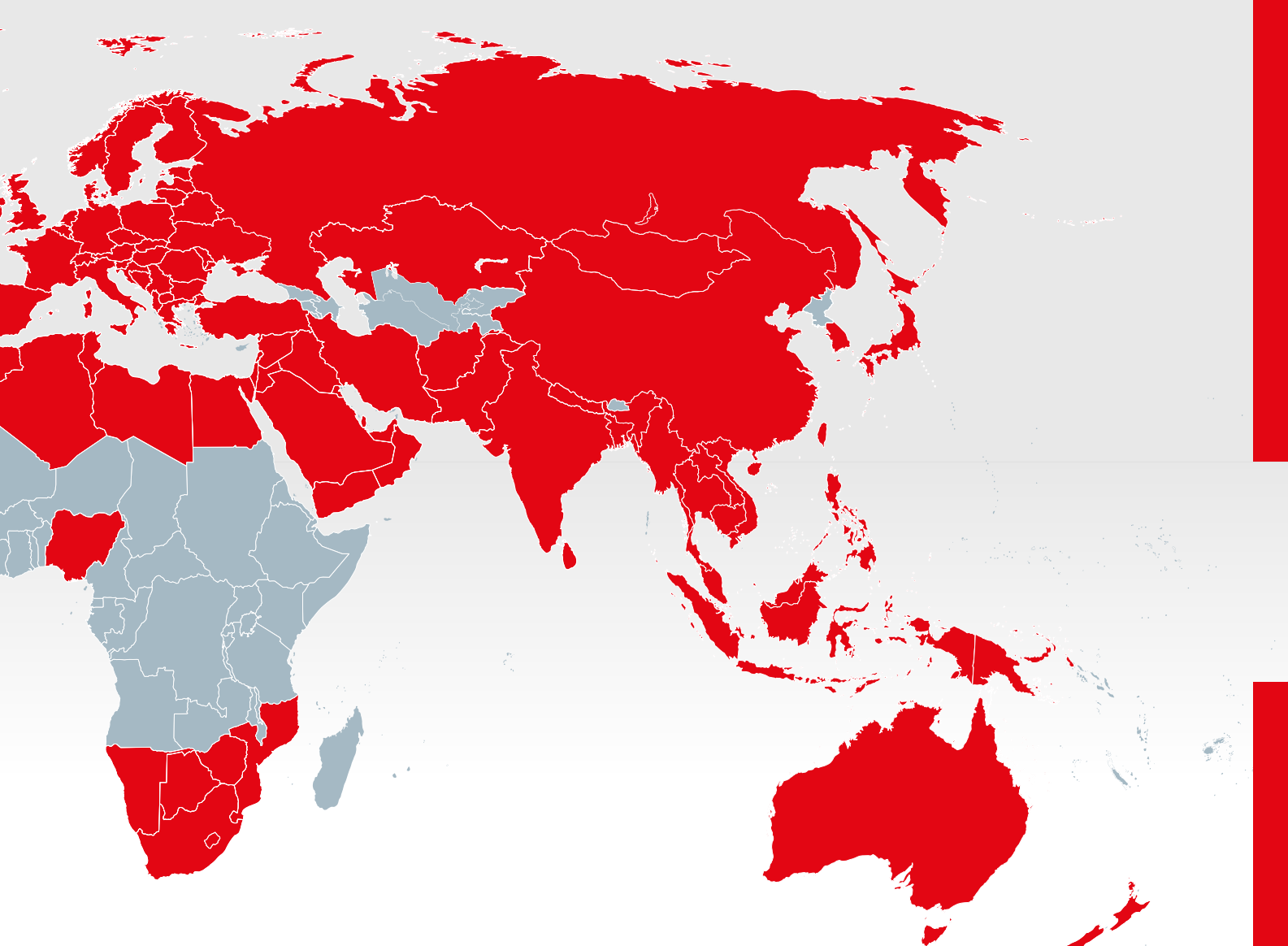
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www.bangkokcontroller.com


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www.fardiesel.com

TRAINING CENTRE

Learn more about our products

The ComAp state-of-the-art Training Centre in Prague, Czech Republic allows ComAp customers unrivalled use and access to ComAp products in a modern purpose built facility. The centre has been designed for both theoretical classroom-based training sessions, and also practical experience based training using the latest ComAp products on operational gen-sets.

The group of installed gen-sets are able to simulate real-world conditions to allow customers to understand the practical application of ComAp products. This practical experience is invaluable in creating a learning environment and was a key consideration when building the new facility.

The embedded control systems allow users to simulate any application from simple applications with just basic controllers to complex (multiple Mains/gen-set) applications with bus tie breakers and feeders. Users can experience simulated drops in power, load shedding and

many other scenarios without risking damage to expensive equipment, as the demonstration machines have been specifically designed for training purposes.

For the price of travel and a hotel, you can learn at your own speed, without risking damage to expensive equipment. Hands-on training helps lower downtime, which helps keep costs down, through users enjoying and understanding the full benefits of their systems, taught by product specialists selected for their expertise.

Our programme of training includes the following courses:

- ▷ Standard A
- ▷ Standard B
- ▷ Advanced
- ▷ Advanced Plus
- ▷ Engine
- ▷ Bi-fuel

For details of each course refer to the ComAp website

www.comap.cz/support/training/hands-on/



TECHNICAL SUPPORT

Call us on +420 246 012 666

Our technical support specialists will help you to solve your requests. Detail info at www.comap.cz/support/technicalsupport

Available Monday to Friday (excluding national holidays).

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Order codes (The overview of selected products and their order codes)

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InteliNano ^{NT} AMF	IN-NT AMF
InteliNano ^{NT} Plus	IN-NT PLUS
InteliLite ^{NT} MRS 10	IL-NT MRS10
InteliLite ^{NT} MRS 15	IL-NT MRS15
InteliLite ^{NT} MRS 16	IL-NT MRS16
InteliLite ^{NT} AMF 20	IL-NT AMF20
InteliLite ^{NT} AMF 25	IL-NT AMF25
InteliCompact ^{NT} SPTM	IC-NT SPTM
InteliCompact ^{NT} MINT	IC-NT MINT
MainsCompact ^{NT}	MC-NT
InteliGen ^{NT}	IG-NT GC
InteliGen ^{NTC} BaseBox	IG-NTC-BB
InteliSys ^{NTC} BaseBox	IS-NTC-BB
InteliMains ^{NTC} BaseBox	IM-NTC-BB
InteliATS ^{NT} STD	IA-NT STD
InteliATS ^{NT} PWR	IA-NT PWR

Product name	Order code
InteliPro	INTELI PRO
MainsPro	MAINS PRO
InteliDrive Nano	ID-NANO
InteliDrive Nano WP	ID-NANO WP
InteliDrive Lite	ID-FLX-LITE
InteliDrive Lite DC	ID-FLX-DC
InteliDrive Lite EM	INTELI DRIVE EM
InteliDrive Lite FPC	ID-FLX FPC
InteliDrive DCU Industrial	ID-DCU
InteliDrive DCU Marine	ID-DCU MARINE
InteliDrive Mobile	ID-MOBILE
InteliDrive Mobile Logger	ID-MOBILE LOGGER
InteliBifuel 2	IBF-2
InteliBifuel 20	IBF-20
InteliVision 5	INTELIVISION 5
InteliVision 8	INTELIVISION 8
InternetBridge-NT	IB-NT



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LOCAL DISTRIBUTOR / PARTNER

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

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