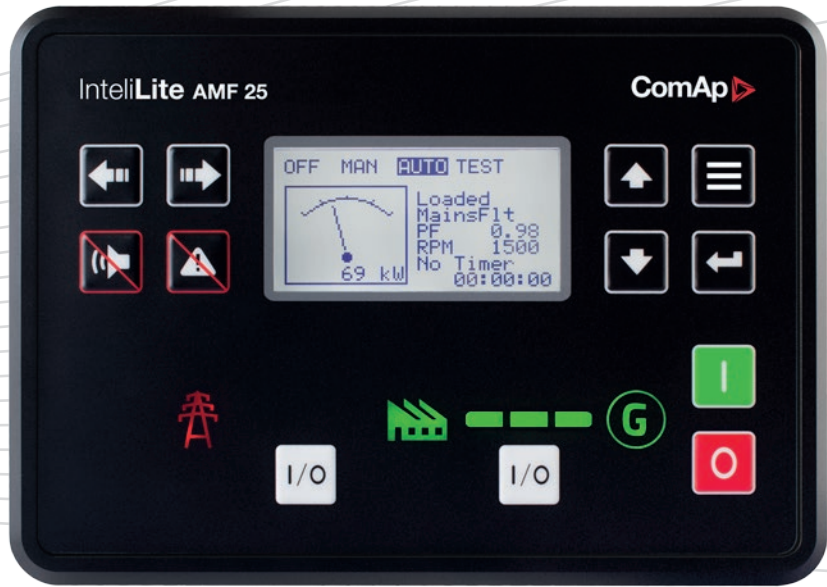# ComAp™
The heart of smart control

**Keeping your business running**
**That's smart control**

**Single gen-set control solutions**

# Single gen-set control solutions



Single genset solutions present a first step to the world of ComAp's high quality power generation control systems. Our mission is to build on the experiences gained in complex, high-end applications, and transfer them in a range of powerful, yet simple and intuitive products dedicated for the single genset applications.

To deliver on our promise, ComAp has launched a new generation of one of the world's most successful controllers in its class – the InteliLite. Completely redesigned, with highly reputable ComAp PLC logic inside, 4G and GPS capability, the new InteliLite sets a new standard in the single genset control systems market.

# What ComAp offers

## 1 ▶ Easy to use and flexible

## 2 ▶ Quality

> If it is easy to use, then it saves time – and if it saves time, then it saves money! This is the concept behind our products and solutions.

> This family of controllers comes with a new and very intuitive PC software.

> The PC software has many pre-defined functions and settings to make the configuration process easier, but also provides you with the freedom to define the controller settings yourself.

> The built-in PLC allows you to respond to the more complex and specific needs of your installations saving you the cost of an external PLC solution.

> ComAp's PLC is so easy-to-use that you'll able to come up with what you need from the very start.

> All our products are designed to meet or even exceed quality and safety standards. This guarantees the reliability of our products, reduces the maintenance cost and give you the peace of mind you deserve.

# Key benefits

## PLC

> New level of flexibility enabling customers to meet any application requirements.

## 4G and GPS

> With 4G/GPS capabilities we incorporated a fast wireless internet connectivity and advanced functions such as Geofencing and Tracking, protecting our customers' generating-sets at all times.

## New design

> Attractive, thinner and with hid-and-lit symbols even more transparent. A brand new design with the InteliLite spirit.
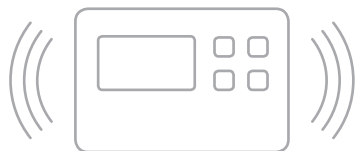
## Plug-in modules

> The in built extension slots allow you to use ComAp's new range of plug-in modules to ensure the controller meets the needs of your application.

## LiteEdit

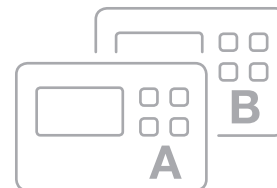> InteliLite comes with a new PC software delivering unmatched configuration possibilities in an intuitive way.



## 3 ▶ Communication



> Get the gen-set under your watch and control it from basically anywhere using the wide range of communication capabilities that we offer. You will save a lot of money by sending technicians to the site only when it is really needed.
> WebSupervisor, 4G (LTE), GPRS, GPS, Ethernet, ModBus, SNMP, Email / SMS alerts, and unit control.
> AirGate technology will help you easily to connect to the device even if you do not know anything about the provided IP address.

## 4 ▶ Customization



> We understand that it is important for you to highlight your brand and therefore we are open and willing to agree with you on offering a tailored solution on a case by case basis.
> You are expert in your field and you can have some special functional requirements from your device. We are open to discuss with you to reach it with the ComAp controller.
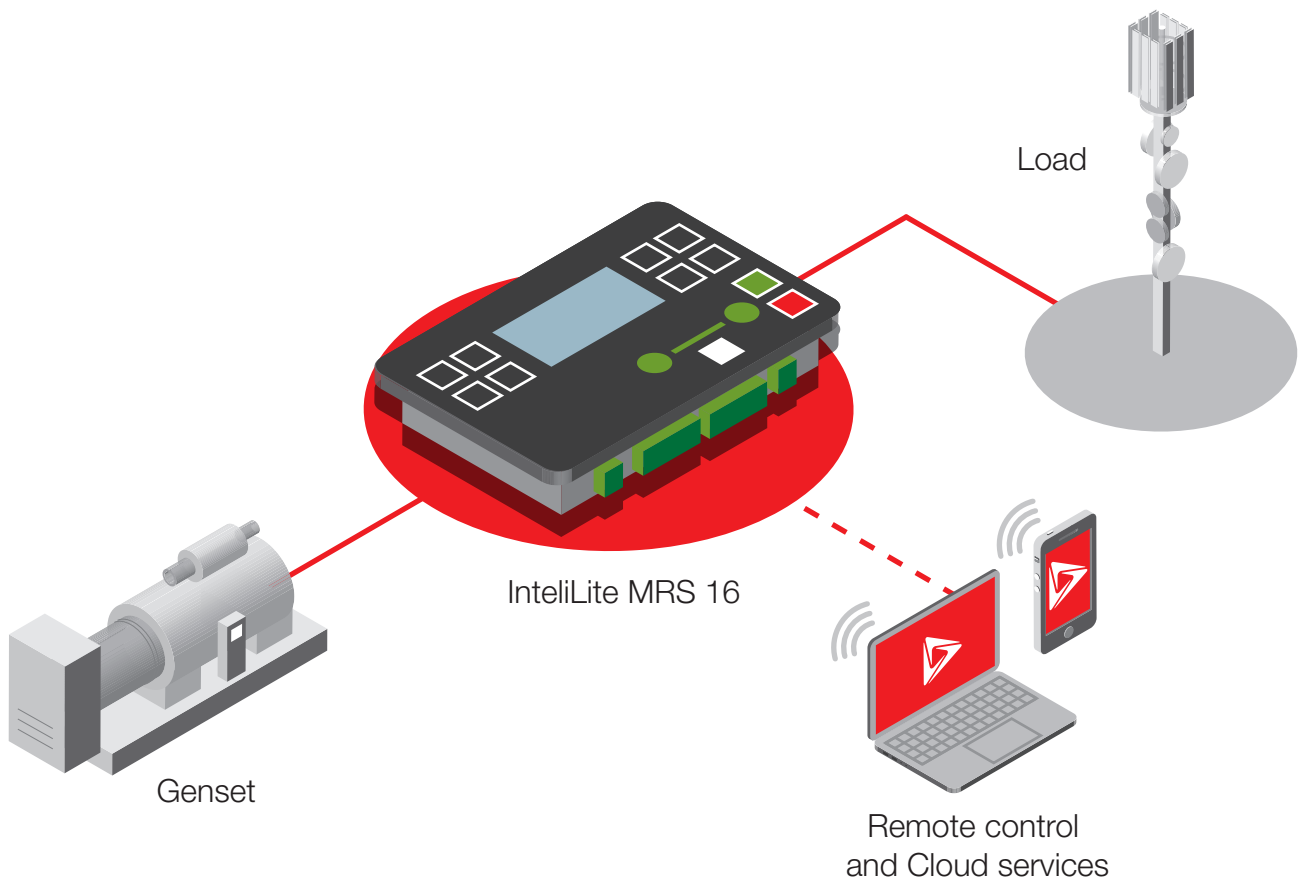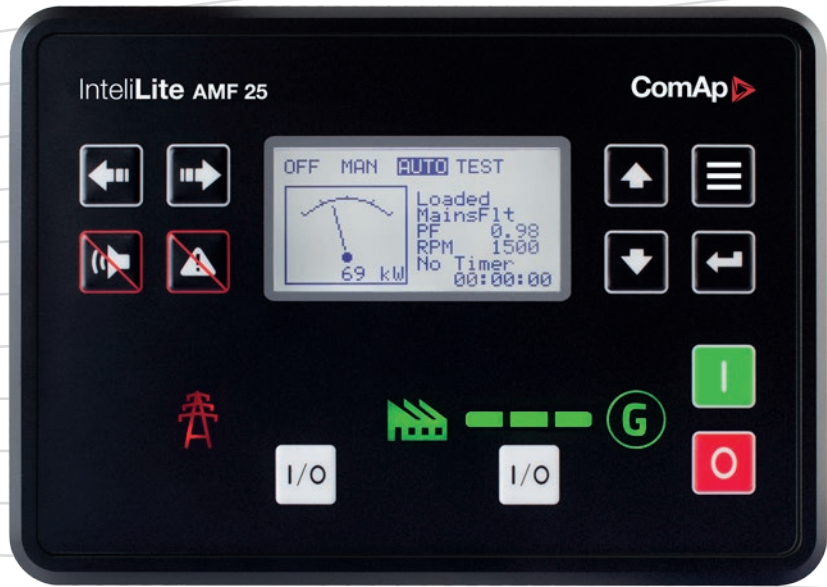
# MRS solution



ComAp's MRS (Manual or Remote Start) family of controllers allow you to effectively operate, monitor, and control a single gen-set, either manually on the gen-set itself, or remotely using any internet enabled device (smartphone, tablet, or PC). Featuring extensive reporting and performance logs, with full gen-set monitoring and protection, the MRS family of controllers also has range of plug-in extension modules available enabling I/O upgrades and additional communication options.

# How does it work?



Load

InteliLite MRS 16

Genset
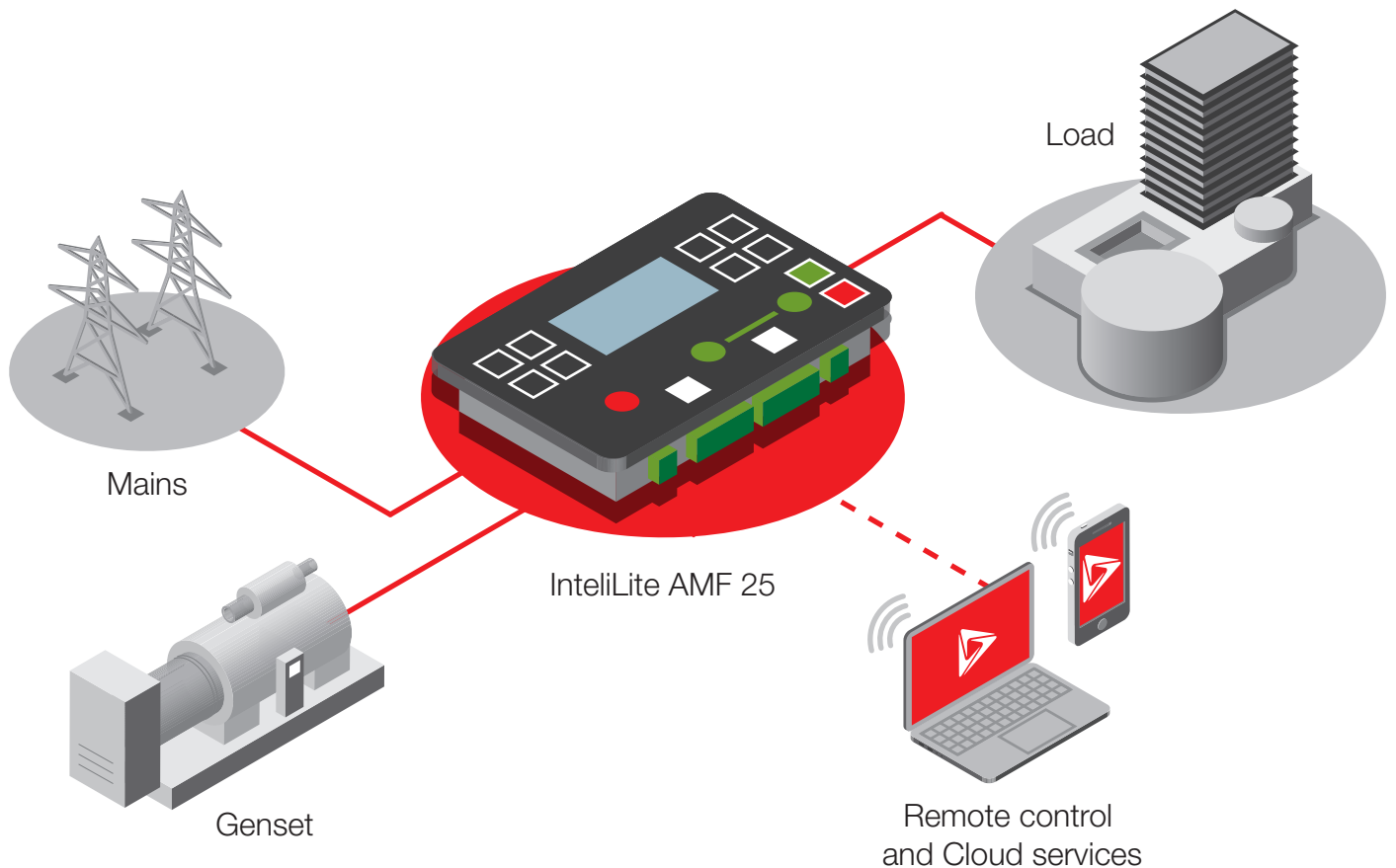
Remote control
and Cloud services

# AMF solution



ComAp's AMF (Automatic Mains Failure) family of controllers allow you to effectively operate, monitor, and control a single gen-set operating in stand-by mode. Full gen-set monitoring and protection, outstanding EFI engine support, and featuring extensive reporting and performance logs, the AMF family of controllers also has range of plug-in extension modules available enabling I/O upgrades and additional communication options.
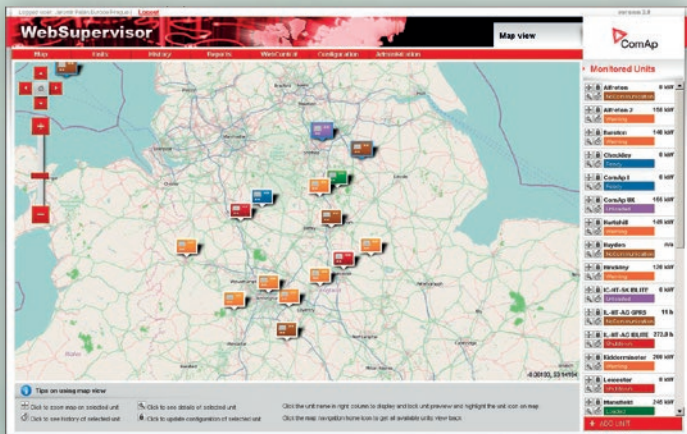
# How does it work?



Load

Mains

InteliLite AMF 25

Genset

Remote control and Cloud services

# Easy communication

## WebSupervisor
## Your entire fleet, safe in your pocket



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.

> Central controlling and monitoring of main values
> Overview of controllers on a map
> History charts of main values
> Reports for revenue stream support
> Customised report values in .xls format
> Available in various languages

## Try it now!
websupervisor.comap.cz

Username:  comaptest
Password:  comaptest

**Intuitive and flexible configuration at your fingertips**
**That's smart control**

## LiteEdit
### Your configuration tool, save your time



> Remote control, monitoring and On-line / Off-line parameters adjustment with 3 levels of password protection
> Controller and module configuration, programming and cloning
> Built in PLC editor
> Power format and ECU unit selection

> Gen-set and ECU Alarm monitoring + complete real time history
> Custom ‚Welcome' screen editor
> Search tool
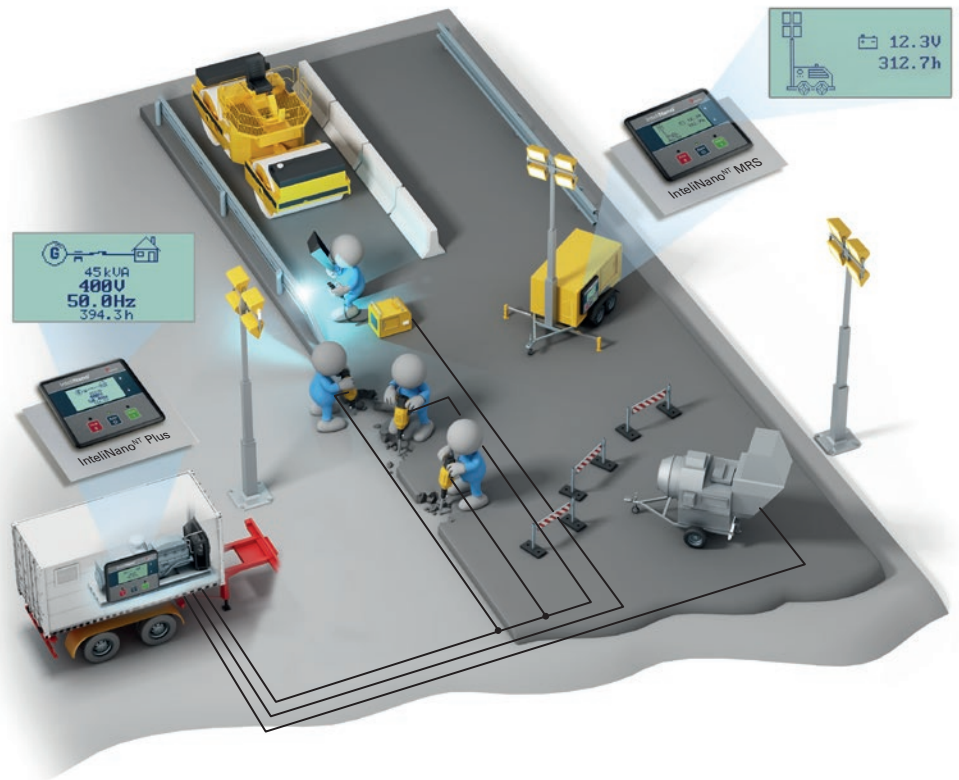> Embedded manuals
> Auto-hiding of unused setpoints

# Applications

## Prime power system

### In rental application

> Manual and remote start for gen-sets with electronic engines. InteliNano<sup>NT</sup> 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.



## Prime power system

### With remote monitoring via Internet

> In this system the gen-set is used as the primary power source.
> InteliLite MRS 16, a Manual and Remote Start controller with electronic engine support, will monitor, protect and control the gen-set and the circuit breaker to supply the load.
> The controller communicates with engine management unit via 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.

# Standby system

**In commercial application**

> In standby systems, the load is supplied by the mains and the gen-set is used as a back-up.
> InteliLite AMF 25, an Auto Mains Failure controller with electronic engine support, continuously monitors the mains and in case of any failure it automatically starts the engine and transfers the load to the generator.
> The controller communicates with engine management unit via 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.
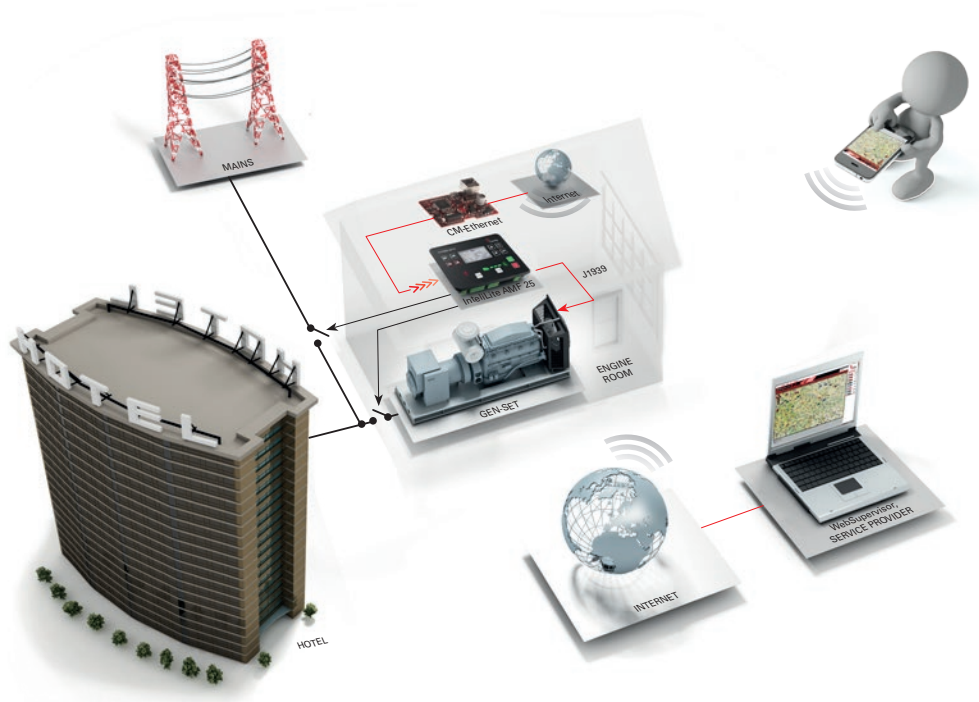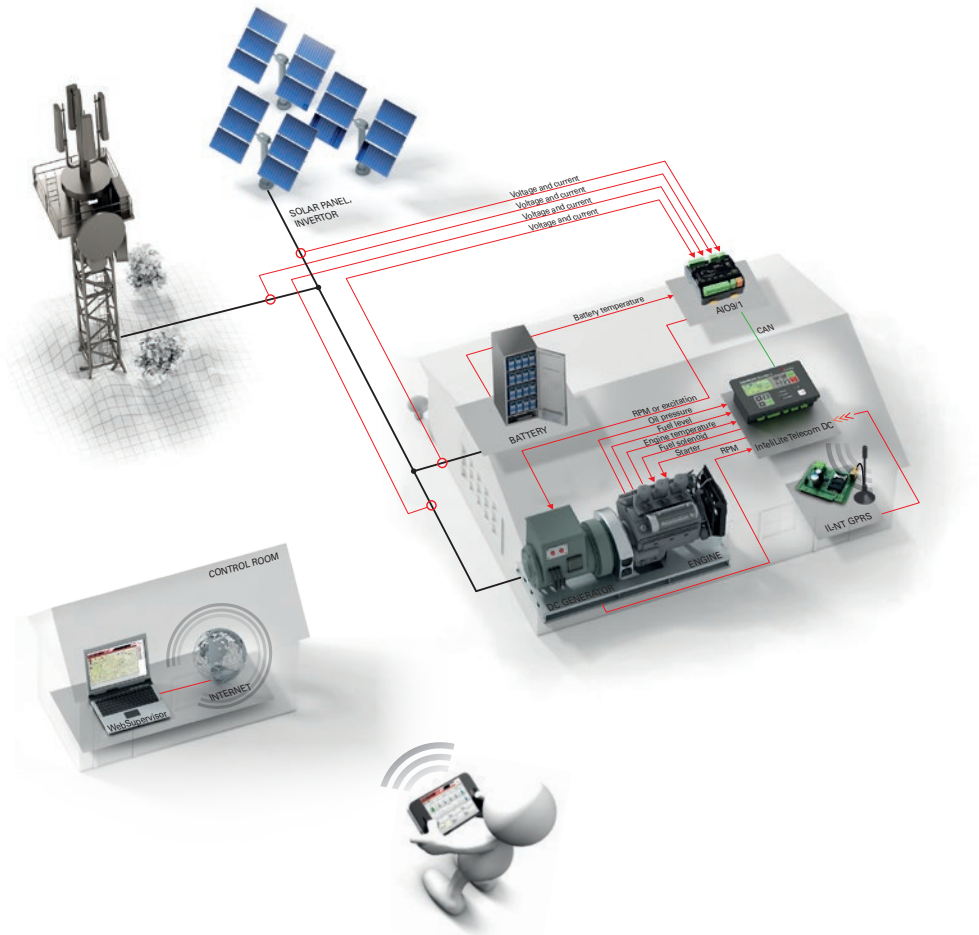


# DC cycling system

**For remote telecom tower sites**

> Use a ComAp system including InteliLite Telecom DC to efficiently control your DC variable speed generating-set, renewable DC power source and battery for a reliable and cost-effective off-grid solution.
> Due to higher efficiency DC cycling solution can deliver significant OPEX savings when compared to AC cycling or non-cycling solution.
> Remote monitoring for optimal service intervals, fault reporting and reduced logistics costs.

# References

## 🇵🇱 Poland
## Agregaty FOGO

Agregaty Fogo from Poland – a leading power generator manufacturer in central Europe, recommend the ComAp InteliLite$^{NT}$ series of genset controllers for backup, prime power, and rental applications.

"ComAp controllers from the InteliLite$^{NT}$ series are reliable, very easy to implement and program according to application demands. The variety of languages available makes them very user-friendly both for service personnel and final customers around the globe.

Their compact design with the possibility of upgrading by extending communication modules such as Ethernet or GSM makes them very useful for genset monitoring, service and troubleshooting. Thanks to CAN bus connection, ComAp controllers can easily communicate with top engine manufacturers, for example Volvo Penta.

Thanks to an international after-sales network we can provide training and after-sales support at the highest level."

Marcin Kułach
Area Export Manager, Agregaty FOGO
www.fogo.pl

## 🇬🇧 United Kingdom
## Silverwood Business Park

AJ Power have recently completed the installation and commissioning of 2× 220 kVA sound attenuated canopy units with AMF controls and 2500 litre tank at the "Silverwood Business Park", Northern Ireland for MITIE.

MITIE are a facilities, property and asset management firm and a leading FTSE 250 Business with over 56,000 people and revenues in excess of GBP 1.7 billion. The Silverwood site houses a critical call centre for MITIE operations.

The 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 2× IL-NT AJP3200* remote display panels and an InteliATS$^{NT}$ PWR on the switchboard. The 2 gen-sets also have 2× 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.

* AJP3200 is a custom gen-set controller based on InteliLite$^{NT}$

## 🇦🇪 UAE
# Byrne Equipment Rental

Byrne Equipment Rental is the largest general rental company in the Middle East. They provide equipment rental solutions to a variety of industries including oil & gas, marine, leisure, and tourism industries. Their fleet exceeds 6000 products incorporating everything from air compressors, generators, forklifts, loadalls, lighting towers and welding machines to temporary portable buildings including toilet blocks, offices, storage and accommodation units.

Their power generation equipment has been fitted with InteliLite[NT] MRS 15 and IL-NT GPRS communication modules, enabling remote communications to be used across the fleet. The use of WebSupervisor and LOCATE technology allows Byrne to monitor and manage this large fleet remotely and accurately.

"It is a cost effective and easy to use tool for monitoring our machines online, anytime. The history also provides valuable information for our service teams, helping us cut many extra costs, and lowering downtime."

Nahidh Kashmoula, Technical Manager,
Byrne Equipment Rental





## 🇶🇦 Qatar
# Losail International Circuit

Thanks to the renewed agreement with QMMF, Losail Circuit management, Pramac supplied 44 generators that will illuminate the race events that are due to be held on the Qatar track. Since the 2004 MotoGP Championship, the first level motorbike race category has held a stage in Qatar on the Losail circuit. Due to the extremely hot conditions, from 2006, the race is being held at night. This was possible thanks to the Pramac generators that provide power to the 3,600 light fixtures that are distributed along the circuit. This will generate around 11 MW of power, enough to ensure the right visibility to all the riders that will take part in the races.

The 44 GSW diesel generators can generate 330 kVA each, powered by Volvo Penta engines, are protected by a soundproof enclosure, and equipped with an automatic control panel unit, a GPRS modem for remote control and sand trap air filters for the notorious desert storms. A special modified version of ComAp's InteliLite[NT] AMF 25, (called the AC03) was installed in the control panel on each of the generators to ensure reliable, and easily monitored, control for the race organisers.

The supply of the generators has increased the strong connection between Pramac and the MotoGP world championship. The passion that has always distinguished the company founded in 1966 in Casole d'Elsa and that has become a multinational leader in the field of energy and movement thanks to innovative and dynamic ideas.
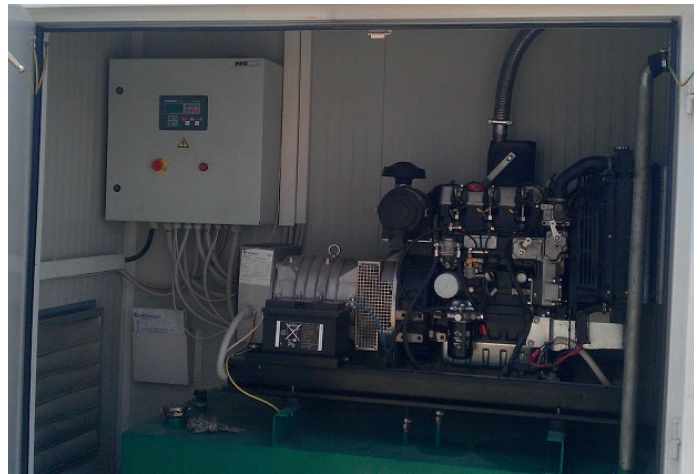
## Kosovo
# Remote Monitoring of Gen-sets in IPKO Telecommunications

IPKO Telecommunications LLC is recognized as one of the fastest growing telecommunications companies in Europe. Established in 1999, IPKO has grown from being the first Kosovo–wide Internet provider to becoming a modern enterprise offering a full range of integrated services (as well as content) in mobile communications, fixed telephony, digital cable television, and internet services.

In each segment – mobile, fixed lines, internet and Digital Cable TV, IPKO has the latest, and the highest quality network in the country. IPKO's network covers more than 99,7 percent of the country's population. All BTS over the country posses power backup through batteries and gen-sets which are operating in standby mode.

During 2012, IPKO started the project "Monitoring and Remote Control of Gen-sets" to reduce costs by installing InteliLite$^{NT}$ AMF 25 controllers. These gen-sets are monitored using ComAp's WebSupervisor. InteliLite$^{NT}$ AMF fulfills all the requirements gen-sets protection and full remote control. The benefits from using InteliLite$^{NT}$ AMF 25 and their online remote controlling are plenty, in decreasing the costs, decreasing the visits on site, fuel cost control and gen-set durability.

## Australia
# Transmitting and recieving stations for marine radio signals

Kordia is one of Australia's largest Telecommunications Systems Integration service delivery organisations. They specialize in designing and building telecommunications systems, including mobile phone relay centres and radio transmission towers throughout Australia. Recently Greenbird Technology worked with Kordia to upgrade the transmitting and recieving stations for marine radio signals along the Australian coast.

The entire project consisted of delivering 9 control panels fitted with InteliLite$^{NT}$ AMF 25 (5×) and InteliLite$^{NT}$ MRS 16 (4×). Each controller was equipped with following ComAp accessories:

> IL-NT BIO8 and IG-IOM for I/O expansion
> IB-Lite for MODBUS TCP communication protocol between controlers and site PC

Engines we controlled were Yanmar and John Deere, power output between 8 kW and 50 kW.

The main benefits were controls diagnostics and remote signals (start, stop, fault reset etc) options provided by IB-Lite, together with controllers offering genset protections and overall robust control system. The sites are going to be further enhanced with InternetBridge-NT modules to add all the units to WebSupervisor.

Telecom

Events

Industrial

Mining

Commercial

Agriculture

Rental

Oil & Gas

Defence

Construction

**Thousands of BTS sites powered by ComAp**
**That's smart control**

# Key products

## InteliLite MRS 11

> Single gen-set controller for prime power applications
> Direct communication with EFI engines
> Total remote monitoring and control
> Easy to install, configure and use
> Wide range of communication capabilities including:
> • connection via RS232, RS485, CAN and on board USB
> • internet access using Ethernet, GPRS or 4G
> • support for Modbus and SNMP protocols
> Internal PLC support with PLC editor and monitor included in LiteEdit
> Cloud-based monitoring and control
> Active SMS and emails in different languages
> SNMP traps
> 2× 10 A binary outputs for cranking and fuel solenoid
> Option for up to 8 additional binary inputs/outputs
> Flexible event based history with up to 350 events
> Tier 4 final support
> Automatic temperature based cooling/heating
> Comprehensive gen-set protections
> Multipurpose flexible timers
> True RMS measurement

## InteliLite MRS 16

> Single gen-set controller for prime power applications
> Direct communication with EFI engines
> Total remote monitoring and control
> Easy to install, configure and use
> Wide range of communication capabilities including:
> • connection via RS232, RS485, CAN and on board USB
> • internet access using Ethernet, GPRS or 4G
> • support for Modbus and SNMP protocols
> Internal PLC support with PLC editor and monitor included in LiteEdit
> Cloud-based monitoring and control via WebSupervisor
> Active SMS and emails in different languages
> SNMP traps
> Geofencing and tracking via WebSupervisor
> 2× 10 A binary outputs for cranking and fuel solenoid
> Option for up to 16 additional binary inputs/outputs
> Flexible event based history with up to 350 events
> Load shedding, dummy load capability
> Tier 4 final support
> Automatic temperature based cooling/heating
> Comprehensive gen-set protections
> Multipurpose flexible timers
> True RMS measurement
> Available also in low temperature (LT) version

# InteliLite AMF 20

> Single gen-set controller for stand-by and prime power applications
> Direct communication with EFI engines
> Total remote monitoring and control
> Easy to install, configure and use
> Wide range of communication capabilities including:
  • connection via RS232, RS485, CAN and on board USB
  • internet access using Ethernet, GPRS or 4G
  • support for Modbus and SNMP protocols
> Internal PLC support with PLC editor and monitor included in LiteEdit
> Cloud-based monitoring and control
> Active SMS and emails in different languages
> SNMP traps
> 2× 10 A binary outputs for cranking and fuel solenoid
> Option for up to 8 additional binary inputs/outputs
> Flexible event based history with up to 350 events
> Tier 4 final support
> Automatic temperature based cooling/heating
> Comprehensive gen-set protections
> Multipurpose flexible timers
> True RMS measurement

# InteliLite AMF 25

> Single gen-set controller for stand-by and prime power applications
> Direct communication with EFI engines
> Total remote monitoring and control
> Easy to install, configure and use
> Wide range of communication capabilities including:
  • connection via RS232, RS485, CAN and on board USB
  • internet access using Ethernet, GPRS or 4G
  • support for Modbus and SNMP protocols
> Internal PLC support with PLC editor and monitor included in LiteEdit
> Cloud-based monitoring and control via WebSupervisor
> Active SMS and emails in different languages
> SNMP traps
> Geofencing and tracking via WebSupervisor
> 2× 10 A binary outputs for cranking and fuel solenoid
> Option for up to 16 additional binary inputs/outputs
> Flexible event based history with up to 350 events
> Load shedding, dummy load capability
> Tier 4 final support
> Automatic temperature based cooling/heating
> Comprehensive gen-set protections
> Multipurpose flexible timers
> True RMS measurement
> Available also in low temperature (LT) version

# InteliNano<sup>NT</sup> Plus

Top-of-the-range model from InteliNano<sup>NT</sup> family. AMF and MRS controller with current measurement and support for EFI engine.
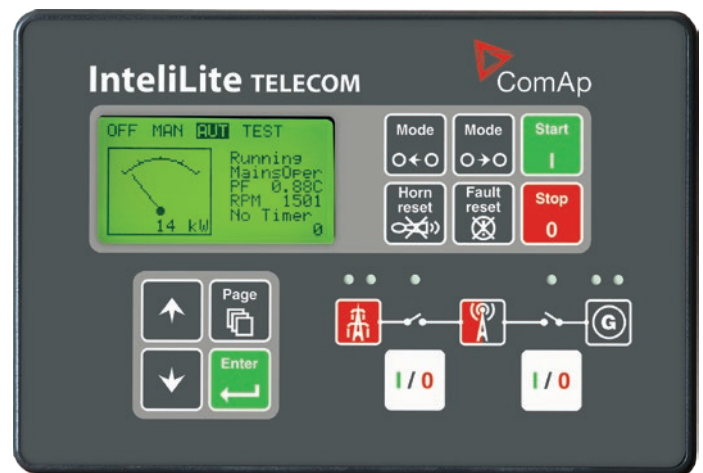
> AMF and MRS controller in one model
> 1/3 Phase generator voltage measurement
>   (3/3 phase when used as MRS controller)
> 1 Phase generator current measurement
> 3 Phase mains voltage measurement
> Connection type and voltage auto detect
> Various generator and engine protections
> Biggest LCD screen in its class
> Icon menu, no text
> Automatic or manual MCB and GCB control
> „Zero" power consumption mode
> Battery voltage, Service time and Running hours indication
> All setpoints and I/O's configurable via front panel
> Ability to catch up on running engine (for manual engine start)
> Light Tower mode supported

# InteliLite Telecom

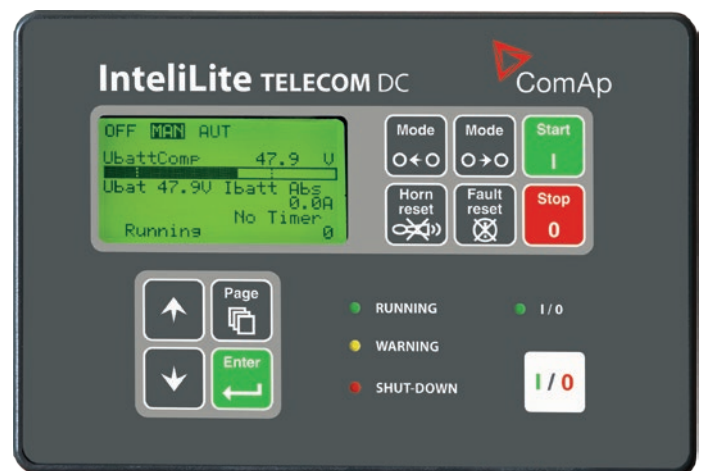Auto Mains Failure (AMF) genset controller for telecommunications

> Smart battery charging and cycling management for lower OPEX
> WebSupervisor, AirGate and LOCATE support*
> Automatic SMS on alarm or event & genset control over SMS*
> On-line control and monitoring over web pages
>   (embedded web server) via plug & play IB-Lite
> Optional GSM/GPRS modem/wireless Internet via IL-NT GPRS
> Fuel theft protection and Total fuel consumption monitoring
> Air-conditioning control
> Full gen-set monitoring and protection
> Outstanding EFI engine support with diagnostic messages in plain text via J1939
> Detailed RTC event and performance log
> Multiple languages (user changeable) in controller, even more in installation suite
> Plug-in and CAN bus extension modules capability
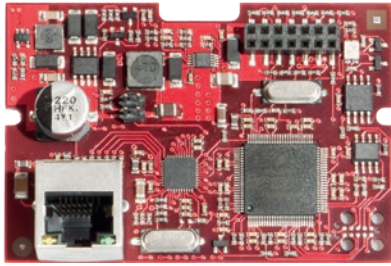> A/B start battery support

# InteliLite Telecom DC

DC genset controller for telecom tower applications

> Uses variable speed DC generators to charge batteries
> Charging current/voltage regulated by speed (variable speed engines, dual speed engines) or excitation (single speed engines)
> Automatic Start and Stop according to the accumulator voltage and charging current
> Voltage compensation according to battery temperature
> Charging time limitation and other protection
> Circuit-breaker control
> Service cycle allows the maintenance people to trigger the charging manually
> Fuel measurement function
> Complete monitoring, control and protection of the system
> Main screen layout adapted for DC applications
> ComAp SCADA compatible (several equipment creating the network)
> WebSupervisor, AirGate and LOCATE support*
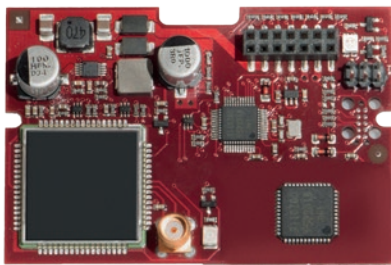> Automatic SMS on alarm*

* Plug-in module required

## CM-Ethernet[1]

> Internet / Ethernet module with 10/100 Mbit interface over RJ45 socket
> Embedded webserver for monitoring and basic adjustments
> ModBus TCP and full SNMP support
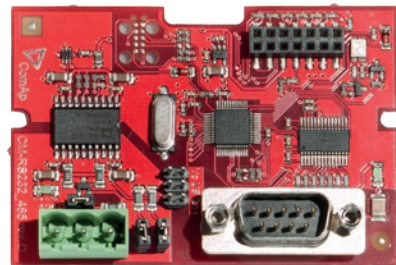> ComAp TCP for remote access and full control over LiteEdit

## CM-GPRS[1]

> Mobile and wireless communication module providing wireless internet connectivity over GPRS and GSM communication
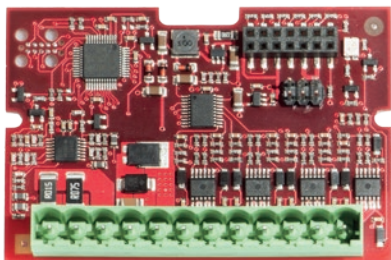> Remote monitoring and control capabilities via LiteEdit, WebSupervisor and active SMS / Emails alerts and control

## CM-4G-GPS[1]

> Combined module that offers fast speed 4G communication capability, including active SMS / Emails alerts and control
> GPS location with geofencing and tracking

## CM-RS232-485[1]

> Communication module with dual port for RS232 and RS485 providing 2 separate and independent COM channels
> Supports Modbus RTU, ECU link and direct connection to LiteEdit and other ComAp's PC software

## EM-BIO8-EFCP[1]

> Extension module with 8 configurable binary terminals for inputs or outputs
> Possibility to connect a current transformer for earth fault current measurement and protection

## IGS-PTM[2]

> Module providing 8× BINs, 8× BOUTs, 4× AINs and 1× AOUT
> The state of binary inputs/outputs is indicated by LEDs
> Measures values from Pt100 and Ni100 sensors
> Connected over CAN bus

1) The product is suitable only for new generation of InteliLite models: InteliLite MRS 11, InteliLite MRS 16, InteliLite AMF 20, InteliLite AMF 25
2) The product will be available for new generation of InteliLite models in Q3 2016

# Controller features

| | InteliNano<sup>NT</sup> PLUS | InteliLite<sup>NT</sup> AMF 8 | InteliLite<sup>NT</sup> AMF 9 | InteliLite<sup>NT</sup> AMF 20 |
|---|---|---|---|---|
| Binary inputs / outputs | 6 / 6 [2)] | 4 / 6 | 4 / 6 | 7 / 7 |
| Analog inputs | 3 | 3 | 3 | 3 |
| 2 × 10 A binary outputs | – | – | – | – |
| Input / output configurations | ● / ● | ● / ● | ● / ● | ● / ● |
| D+ battery charging alternator circuit | ● | ● | ● | ● |
| Magnetic pickup | – | – | – | ● |
| AMF / MRS functions | ● / ● | ● / ● | ● / ● | ● / ● |
| GCB / MCB control with feedback | ● / ● | ●[6)] / ●[6)] | ●[6)] / ●[6)] | ● / ● |
| 3ph voltage measurement Gen. / Mains | ●[4)] / ● | ● / ● | ● / ● | ● / ● |
| 3ph current measurement | –[5)] | ● | ● | ● |
| Frequency measurement Gen. / Mains | ● / ● | ● / ● | ● / ● | ● / ● |
| kW / kWh / kVA measurement | – / – / ● | ● / ● / ● | ● / ● / ● | ● / ● / ● |
| Generator protections | ● | ● | ● | ● |
| Earth fault current protections | – | – | – | – |
| History file | ● | ● | ● | ● |
| RTC / Battery | – / – | – / – | – / – | – / – |
| PLC | – | – | – | – |
| Remote control | – | ○ | ○ | ○ |
| 4G | – | – | – | – |
| Tracking & Geofencing | – | – | – | – |
| Active SMS / E-mails | – | ○ | ○ | ○ |
| AirGate | – | – | – | ○ |
| WebSupervisor | – | – | – | ● |
| USB integrated | ● | ●[7)] | ●[10)] | –[11)] |
| ECU support via CAN | ● | – | ● | – |
| Modbus support / SNMP support / SNMP traps | – / – / – | – / – / – | – / – / – | ○ / ○ / – |
| Plug-in modules | – | ●[8)] | ●[8)] | ●[12)] |
| Manual speed control[1)] | – | – | – | – |
| Total fuel consumption | – | – | – | – |
| Fuel pump | – | – | – | – |
| Dummy load / Load shedding | – | – | – | ● |
| Auto. temperature based heating & cooling | – | – | – | ● |
| Analog calibration | – | – | – | ● |
| Connection type autodetect | – | – | – | – |
| Tier 4 Final support | – | –[9)] | –[9)] | –[9)] |

KEY
- ● Included
- – Excluded
- ○ Optional – plug-in module required
- GCB: Generator circuit breaker
- MCB: Mains circuit breaker

1) For ECU engines
2) 1 binary input is shared with binary output
3) Analog inputs are shared with binary inputs
4) 1 ph; 3 ph when used as MRS controller

5) 1 ph is available
6) Manual / Automatic GCB and MCB control, but without feedback
7) Available in Q2 2016; only for model with order code: IL1A8USBXAB

| InteliLite<sup>NT</sup> AMF 25 | InteliLite MRS 11 | InteliLite MRS 16 | InteliLite AMF 20 | InteliLite AMF 25 |
|:---:|:---:|:---:|:---:|:---:|



| InteliLite<sup>NT</sup> AMF 25 | InteliLite MRS 11 | InteliLite MRS 16 | InteliLite AMF 20 | InteliLite AMF 25 |
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| ○ | – | ○ | – | ○ |
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| ○ | ○ | ○ | ○ | ○ |
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| –<sup>11)</sup> | • | • | • | • |
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| ○ / ○ / – | • / – / ○ | • / • / ○ | • / – / ○ | • / • / ○ |
| •<sup>13)</sup> | •<sup>14)</sup> | •<sup>14)</sup> | •<sup>14)</sup> | •<sup>14)</sup> |
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| –<sup>9)</sup> | • | • | • | • |

# Product overview

### InteliLite MRS 11
> Single gen-set controller for prime power applications

### InteliLite MRS 16
> Single gen-set controller for prime power applications

### InteliLite AMF 20
> Single gen-set controller for stand-by and prime power applications

### InteliLite AMF 25
> Single gen-set controller for stand-by and prime power applications

### InteliNano^NT Plus
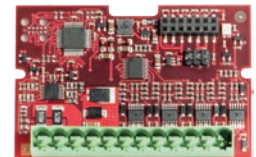> Top-of-the-range model from InteliNano^NT family with current measurement and support for EFI engine

### InteliLite Telecom
> Auto Mains Failure (AMF) genset controller for telecommunications

### InteliLite Telecom DC
> DC genset controller for telecom tower applications

### EM-BIO8-EFCP
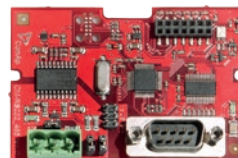> Hybrid current input & binary input/output extension module

### CM-GPRS
> GSM modem / wireless internet module

### CM-4G-GPS
> 4G modem / wireless internet module

### CM-RS232-485
> Dual port extension board

### CM-Ethernet
> Internet / ethernet plug-in module including web server

## ComAp
The heart of smart control

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**Local distributor / partner:**