ComAp ™
The heart of smart control

## Reduce the cost of communication with ComAp

Telecom tower solutions

Telecom tower solutions

The world is going through a digital transformation. As subscriber penetration and data traffic continue to rise, so too does the need for new infrastructure consisting of telecom towers. In order to ensure reliable coverage, telecom towers are equipped with backup power systems including gen-sets and batteries.

How does ComAp fit into the telecom market? We provide telecom tower solutions which enable effective management of BTS's power sources – protecting your valuable assets on one side and maximizing fuel efficiency on the other.

How does it work?

Remote control and Cloud services

InteliLite Telecom DC

Telecom tower

Solar panel

Gen-set

Batteries
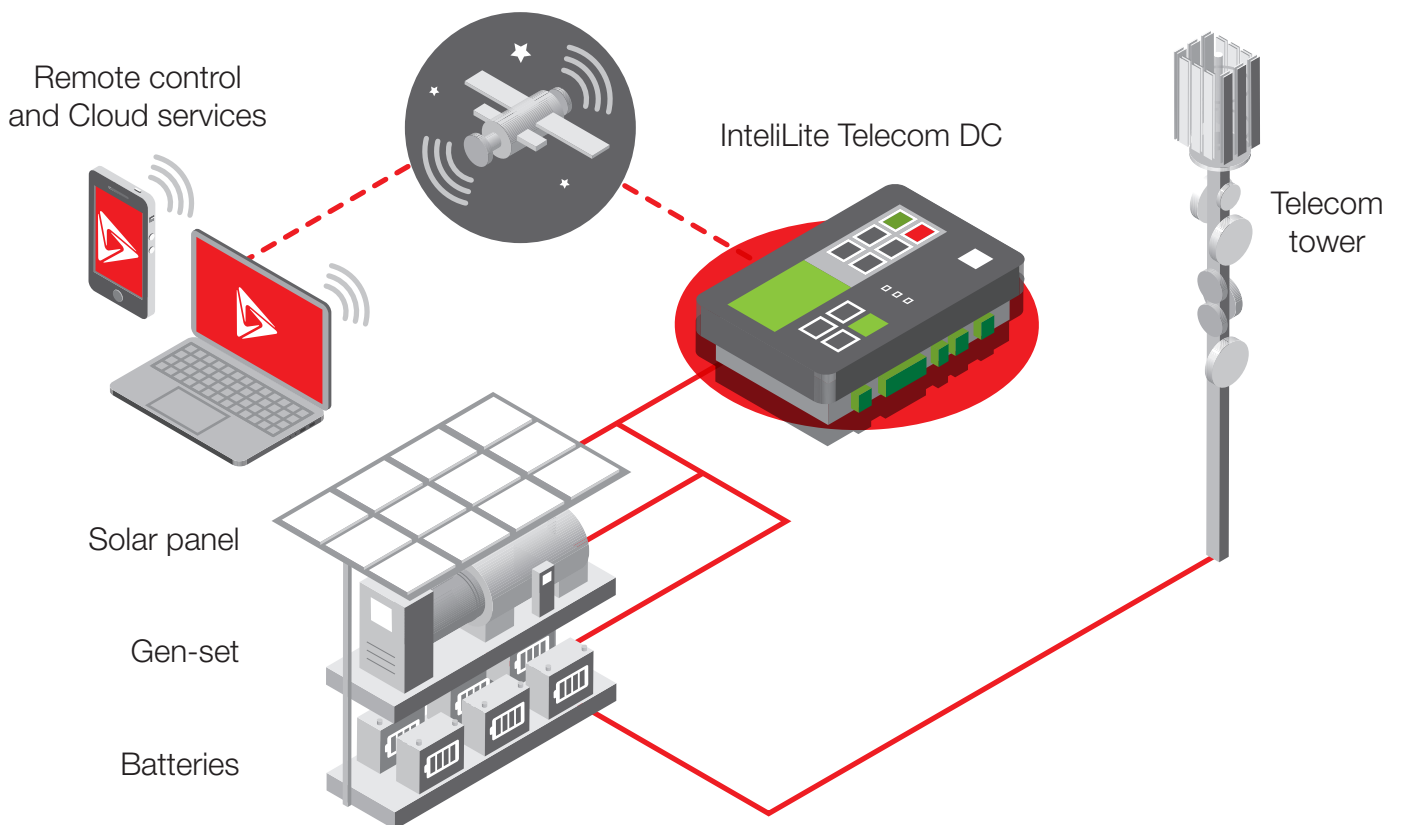
ComAp as a global telecom partner

100 000+ Controllers sold to the telecom market

4 Dedicated telecom products

25 Years of Success and Experience

10+ Various telecom applications

1 Global Headquarters
Prague
Czech Republic

100+ Countries

24/7 Global support

ComAp is the ideal partner for telecom companies. We have the experience that comes from supplying thousands of controllers to telecom tower applications every year; a wide product range dedicated specifically to the telecom market, and the right support, wherever you are, thanks to our expert local subsidiary and distributor network.

What ComAp offers?

ComAp telecom solutions have been designed in a way to comply with requirements of mobile operators and tower companies, as well as OEMs and gen-set packagers supplying to these customers.

Our solutions are hence easily integrated with any type of generator (AC or DC) but at the same time offer many benefits to end-users, with reduction of operational costs being the most important.

Saving OPEX of major telecom companies
That's smart control

Saving operational costs

> Reduced fuel consumption due to effective power management
> Saving logistical costs with advanced remote control and monitoring
> Prolonging gen-set lifetime and maintenance intervals

Reducing CO_2 emissions

> Minimizing gen-set running hours
> Adjusting gen-set output to the BTS's power demand

ComAp solutions

AC generator solution

Gen-sets with an AC alternator have been the market standard for many years and are still being used extensively across the world. Nevertheless, where AC systems have been traditionally used as AMF solution, the new market trend is to utilize 48 V batteries as a primary backup power source, charged either by mains, (if available) or the gen-set itself. This, so-called, cycling operation, reduces the running time of the gen-set and therefore decreases OPEX by saving fuel. ComAp has responded to this trend by introducing the **InteliLite Telecom** controller which enables the cycling operation by measuring battery status and starting/stopping the gen-set accordingly.

Engine

AC generator
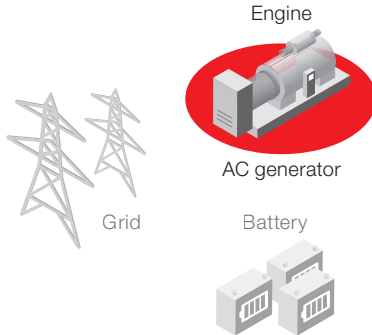
Grid   Battery

> **InteliLite Telecom controller**
> • Reduce fuel consumption and run the gen-set only when necessary to charge the battery – with the controller's integrated Battery Cycling Management
> • Also suitable for standard Stand-by (AMF) and Prime power (MRS) telecom applications
> **Extension and communication modules**
> • Controller can be equipped with one of the various plug-in modules to extend controller's capabilities
> • GPRS and Ethernet communication modules enable to utilize ComAp's remote monitoring systems such as WebSupervisor and AirGate

DC generator solution

As subscriber penetration is rising, mobile network coverage is spreading to ever more remote locations – typically with no grid supply – which is why telecom tower operators need to seek cost effective solutions for providing prime power to their BTS. Without the main power supply, off-grid power systems rely purely on direct current (DC), which is why the popularity of DC gen-sets has been growing recently. Avoiding the unnecessary rectification, batteries can be charged directly from the DC generator while powering the load simultaneously. In fact, the whole BTS application can be powered by one controller – ComAp's **InteliLite Telecom DC**.

Engine

DC generator

Solar   Battery
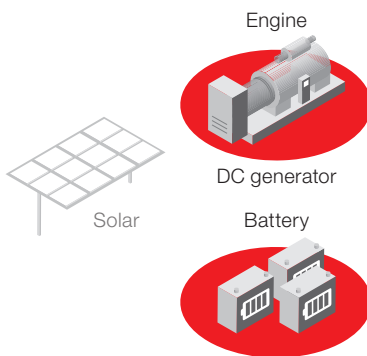
> **InteliLite Telecom DC controller**
> • Capable of battery management by either regulating engine speed (RPM) or adjusting alternator excitation
> • Map individual battery charging curves provided from the manufacturer by using controller's flexible settings
> • InteliLite Telecom DC is hybrid ready. Simply connect a renewable source of energy and the controller will maximize the use of its input, further reducing the running hours of the gen-set
> **Extension and communication modules**
> • Developed specifically for the Telecom DC solution, AIO9/1 extension module provides additional measurement capabilities as well as the possibility to utilize shunts as an alternative to transducers
> • As with the AC solution, the InteliLite Telecom DC can be equipped with GPRS and Ethernet communication modules to help you to monitor your BTS sites more effectively

Engine solution

Complementing the AC and DC generator systems, ComAp is also offering an engine solution which can be easily integrated with an external Battery Management System. The **InteliDrive Telecom** controller has been designed to accept signals from such a system and, based on that input, start/stop the engine or adjust its speed.

Wind   Engine

Generator

Solar   Battery
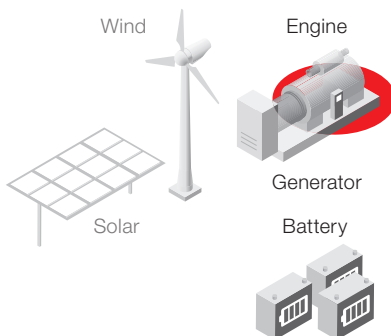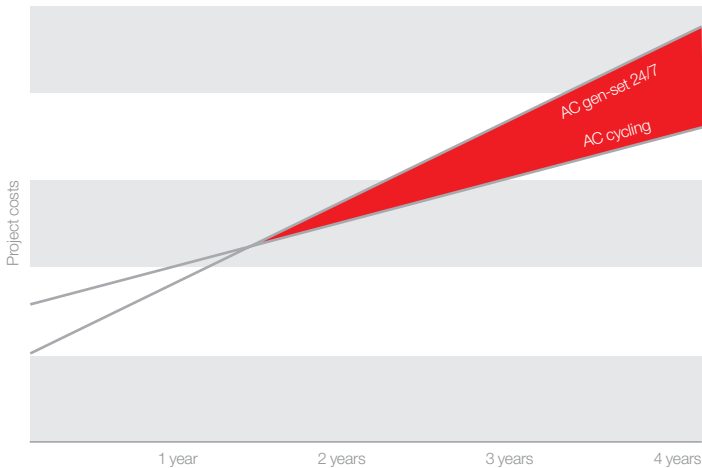
> **InteliDrive Telecom controller**
> • Capable of operating the engine based on a signal from an external controller
> • Protecting the engine at all times
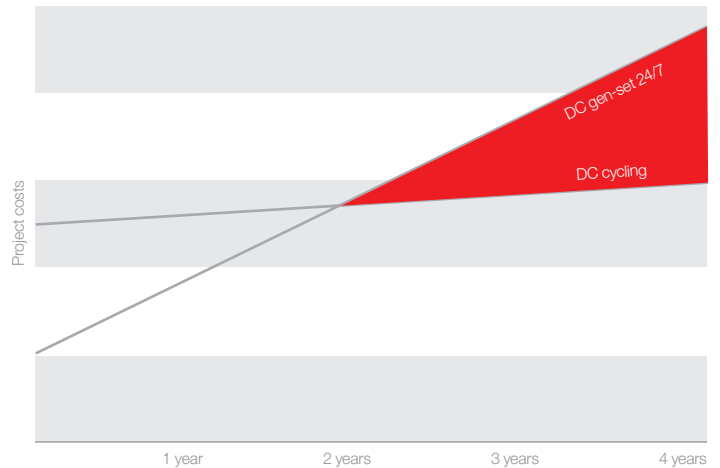> **Extension and communication modules**
> • Controller can be equipped with GPRS and Ethernet communication modules as well as many extension plug-in modules

Fuel consumption savings

AC cycling solution

AC gen-set 24/7

AC cycling

Project costs

1 year   2 years   3 years   4 years

DC cycling solution

DC gen-set 24/7

DC cycling

Project costs

1 year   2 years   3 years   4 years

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Are you interested in Telecom cycling solutions?

However you have no experience with the technology? Simply contact your local ComAp representative and they will guide you through the process of design, installation and commissioning. We can help you achieve the maximum savings from your Telecom installation.

Key features

Battery cycling

ComAp telecom controllers are able to manage the gen-set based on battery status and programmable set points in a way to charge the battery and enable the OPEX saving cycling operation.

Battery charging management

Due to its flexible settings, the InteliLite Telecom DC controller is capable of charging the battery according to the battery's charging curve, including bulk and absorption phase.
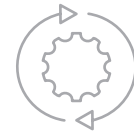
Fully variable speed operation

ComAp's solution utilizes permanent magnet (PMG) DC generators for battery charging by adjusting the engine RPMs. This provides further OPEX savings.

Suitable for hybrid applications

Telecom controllers can be used in connection with renewable sources of energy, such as solar panels, in order to reduce fuel consumption.

Fuel theft prevention

Monitoring the level of fuel in the fuel tank and alerting the operator if a major change occurs? That's smart control!

Remote monitoring and control

No BTS is too far away with ComAp's telecom solutions. By using WebSupervisor and AirGate, you will have full control over the BTS portfolio wherever you are.

Applications

AC cycling system

For cost saving on-grid operation
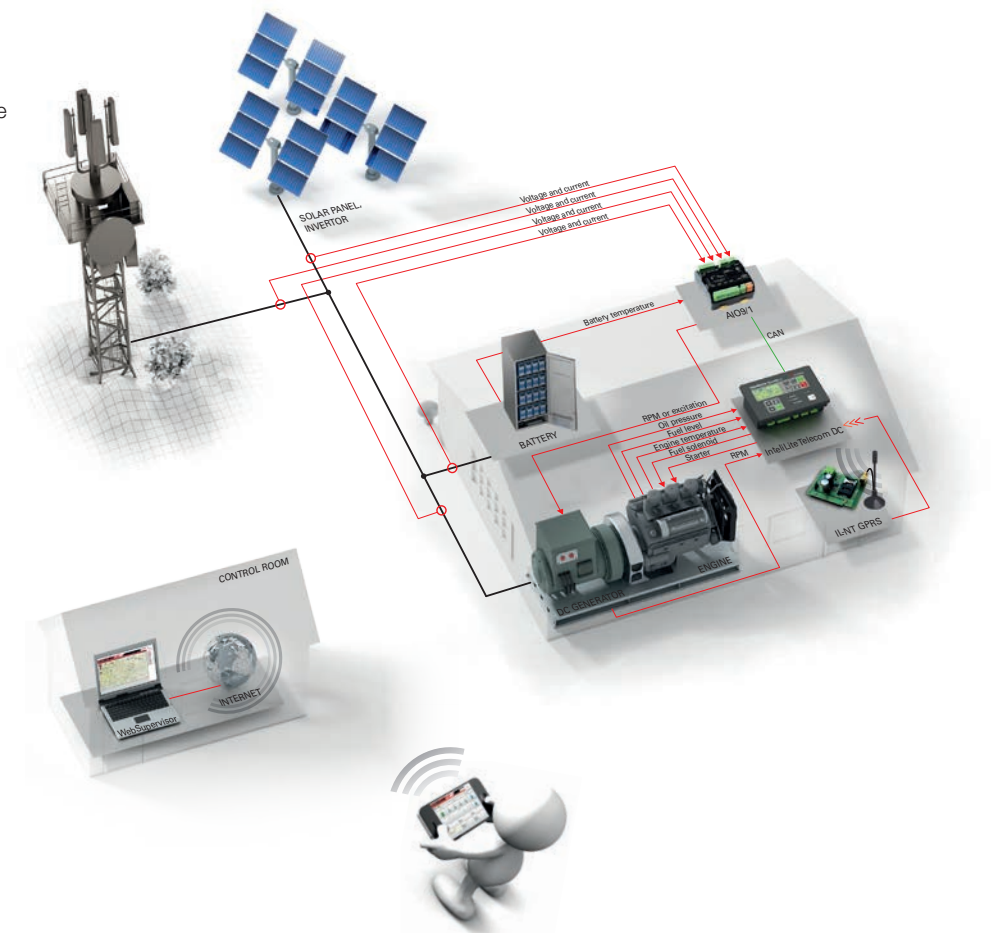
> Gen-set controlled by InteliLite Telecom is used to charge batteries which provide power to the load
> Cycling operation is enabled by the controller's integrated Battery Cycling System, which starts/stops the gen-set based on battery voltage
> AC cycling application powered by ComAp's telecom solution significantly reduces gen-set running hours and thus lowers fuel consumption
> Remote monitoring for optimal service intervals, fault reporting and reduced logistical costs
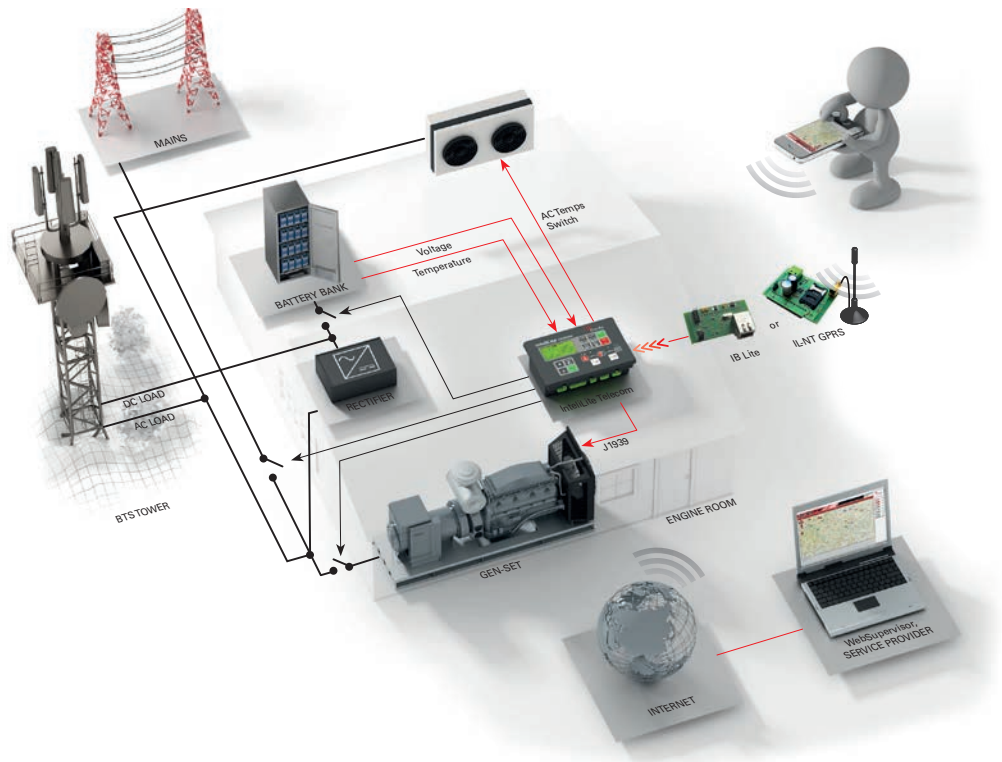
DC cycling system

For remote telecom tower sites

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

Mutual standby AC gen-sets

For fuel efficient on-grid operation

> Two standby AC gen-sets controlled by ComAp InteliLite Telecom controllers
> Gen-sets are switching power supply after a specified period for improved performance, service maintenance scheduling and eventual redundancy
> Failsafe standby system provides high system reliability and OPEX savings
> Remote monitoring for optimal service intervals, fault reporting and reduced logistical costs
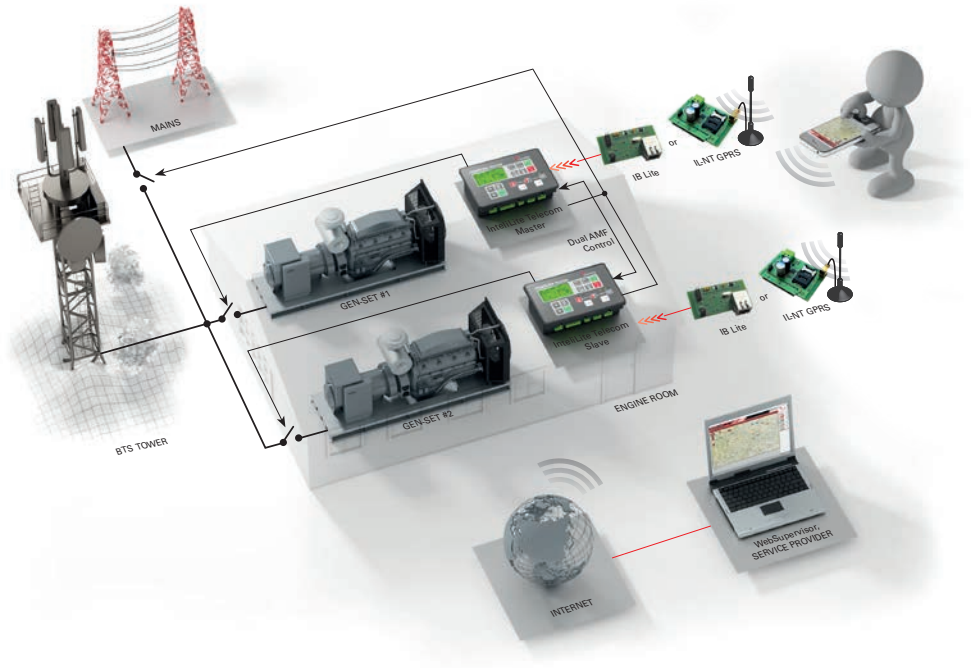
Variable speed engine control

For generating sets with own BMS system

> Use ComAp InteliDrive Telecom controller for engine control at sites with external Battery Management System unit
> All required control and protection of the variable speed engine
> Remote monitoring for optimal service intervals, faults reporting and reduced logistical costs

Your BTS made less remote

WebSupervisor

Remote monitoring and control via internet of all your BTS sites using ComAp's WebSupervisor. Having all the information accessible from your laptop or portable devices, you will be able to make important decisions regarding logistics and equipment maintenance more effectively, saving you time and money.

> 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

We understand that protection of customer data is crucial in the mobile communication business. That is why ComAp offers WebSupervisor as a standard, cloud based system, (featuring multiple layers of security and encryption) but now also as an on-premises solution for customers to install on their own servers. For more information regarding WebSupervisor options, please contact your local ComAp representative.

AirGate

Modern communications made simple. ComAp's powerful AirGate technology is provided in a range of our controllers and makes remote internet connection to the ComAp controller easy. Just register the AirGate enabled controller on our website and from then on let ComAp's unique system locate and maintain contact with the controller, no need to worry about VPNs, Static IP addresses or corporate firewalls, simple! "AirGate – Simply connected."

Try it now!
websupervisor.comap.cz

Username: comaptest
Password: comaptest

ANDROID APP ON
Google play

Available on the
App Store

**Too far? Not with ComAp's WebSupervisor**

References

⬛ 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.
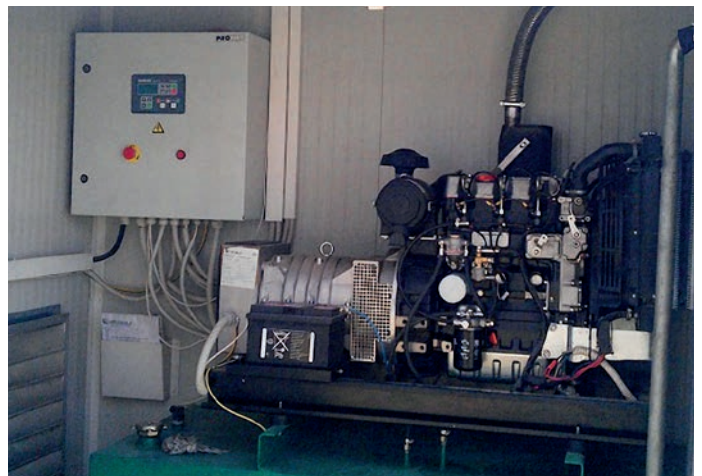
⬛ Vietnam
Levis Manufacturer

DC hybrid solutions are the latest advance in the telecommunication and power generation industries, and Levis Manufacturer, one of the largest gen-set packagers in Vietnam, have decided to utilise ComAp controllers as part of their innovative systems. A DC Hybrid solution incorporating the ComAp InteliLite Telecom DC controller enables telecom customers to save up to 70% of their OPEX, in main due to the presence of a battery and DC variable speed generator.

Additional savings result from the cost benefits of using the integrated WebSupervisor system, which enables efficient remote monitoring and control of the customers' gen-sets for optimised site management.

Key products

InteliLite Telecom

> Integrated Battery Cycling Management system starts/stops the gen-set based on the status of the battery bank reducing total fuel consumption considerably, leading to significant OPEX savings
> Integrated fuel consumption monitoring and fuel theft protection
> Air-conditioning control
> Powerful statistics for OPEX evaluation
> Control the gen-set over SMS and receive automatic messages in the event of an alarm
> Advanced remote control and monitoring capabilities with ComAp's WebSupervisor, AirGate and LOCATE tools
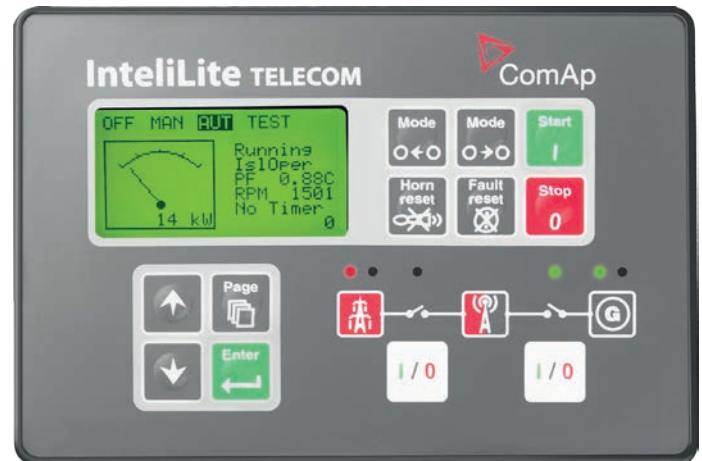
InteliLite Telecom DC

> Integrated battery charging management with possibility of regulating engine speed (RPM) or adjusting alternator excitation
> Automatic start/stop based on the battery voltage and charging current
> Flexible settings enabling to map individual battery charging curve as specified by the manufacturer
> Charging current compensation according to battery temperature
> InteliLite Telecom DC is hybrid ready – simply connect additional renewable source of energy and the controller will maximize its energy further reducing running hours of the gen-set
> Integrated fuel consumption monitoring and fuel theft protection
> Advanced remote monitoring capabilities with ComAp's WebSupervisor, AirGate and LOCATE tools
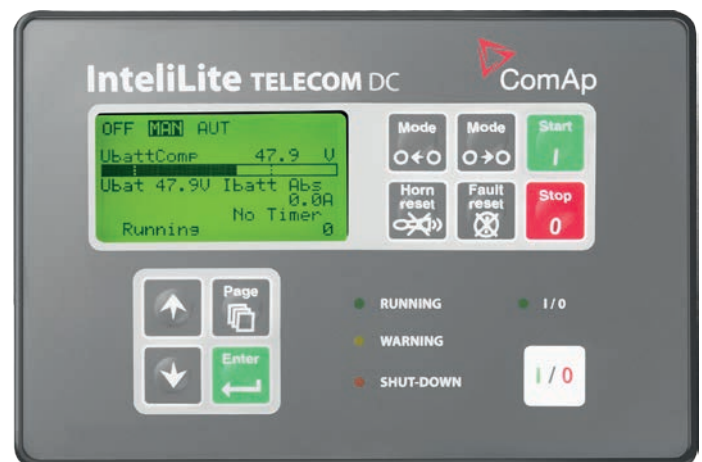
InteliDrive Telecom

> Engine controller for telecom tower applications
> Capable of operating the engine based on signal from external controller
> Control, monitoring and protection for both mechanical and electronic diesel engines in one unit
> Smooth engine speed control
> Control the engine over SMS and receive automatic messages in the event of an alarm
> Advanced remote monitoring capabilities with ComAp's WebSupervisor, AirGate and LOCATE tools
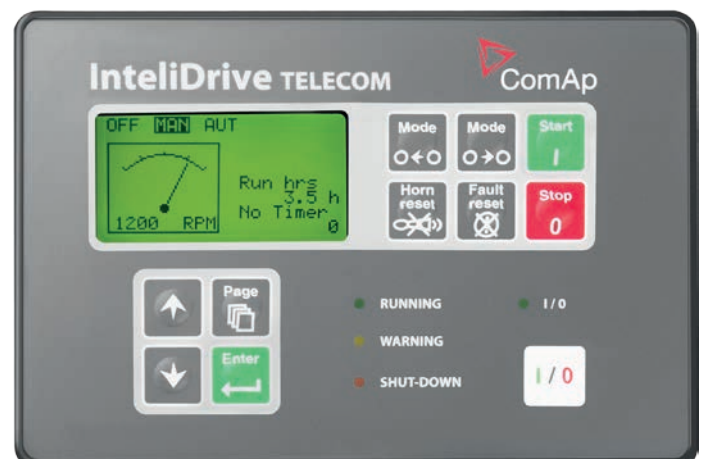
Product overview

InteliLite Telecom

> AC gen-set controller for telecom tower applications

InteliLite Telecom DC

> DC gen-set controller for telecom tower applications

InteliDrive Telecom

> Engine controller for telecom tower applications

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

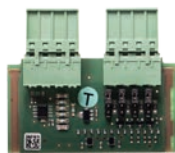> Single gen-set controller for stand-by and prime power applications

InteliLite AMF 25

> Single gen-set controller for stand-by and prime power applications

AIO9/1

> Analogue extension module for DC solution

IL-NT AIO

> Analog input/output module

IL-NT GPRS

> GSM / GPRS modem plug-in module

IB-Lite

> Internet / ethernet plug-in module including web server

WebSupervisor

> Cloud based system for remote monitoring and controlling of ComAp controllers

ComAp™
The heart of smart control

Local distributor / partner:

2016-05/CPBETTSO