PRODUCT GUIDE



Electronic edition - bi-fuel products





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

"Smart and easy"

made possible by ComAp unique technology.















Control is everything

ComAp is an innovative, creative company bringing power control solutions to industrial applications. Our range of power control products and accessories provide our customers with class-leading technology, ease of use, and environmental benefits.

Our products are in use all over the world, in many different situations: from tyre recycling plants in Turkey, to tomato growers in Australia; from oil rigs in Russia, to a soda factory in Ghana; ComAp products are a reliable and cost effective solution for the world's power control needs.



Spain Ferry



United KingdomData Center



GhanaPower Plant



NigeriaPasta Factory



USAManufacturing Facility



Mexico Warehouses



ColombiaOil Field



Ecuador Cruise Ship



Peru Ore Mine



BrazilPaper Factory



BoliviaPower Plant



Chile Casino



Argentina Ski Centre



EgyptCement Production Plant







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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Bi-fuel 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 bi-fuel (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 bi-fuel 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 bi-fuel

see page 120

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
 - SO[®]
- Particulate emissions
- Fuel flexibility and smooth transition between diesel and bi-fuel 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 bi-fuel (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 bi-fuel operation.

The InteliBifuel CU protects the engine during bi-fuel 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 bi-fuel 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

- · Bi-fuel 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
- Bi-fuel running hour meter
- Graphic back-lit LCD display with icons and bar graphs
- Sealed membrane panel to IP65
- 180×120 mm front panel mounted case
- Operating temperature:
 - -20°C to +70°C regular unit
 - -40°C to +70°C low temperature unit
- 3 level password protection
- InteliBifuel 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 InteliBifuel 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 4× IGL-RA15	see page 71
•	up to 4× IGS-PTM	see page 71
•	up to 4× Inteli AIN8	see page 71
•	up to 4x Inteli IO8/8	see page 71
•	up to 4× IS-AIN8	see page 71
•	up to 3x IS-BIN16/8	see page 71
•	up to 4× Inteli AIN8TC	see web pages
•	up to 1x Inteli AlO9/1	see web pages
•	up to 1x I-AOUT8	see web pages
•	up to 2× I-RD-CAN	see web pages

Communication modules and PC tools

InternetBridge-NT see page 71
I-CB see web pages
WinScope see page 72
InteliMonitor see page 76
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)



InteliBifuel DENOX 2

- Anti knocking device
- Field proven solution for knocking detection
- Integration with InteliBifuel 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



InteliBifuel DENOX 20

- Anti knocking device
- Field proven solution for knocking detection
- Integration with InteliBifuel 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



InteliBifuel DFM

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



Ottomotores

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

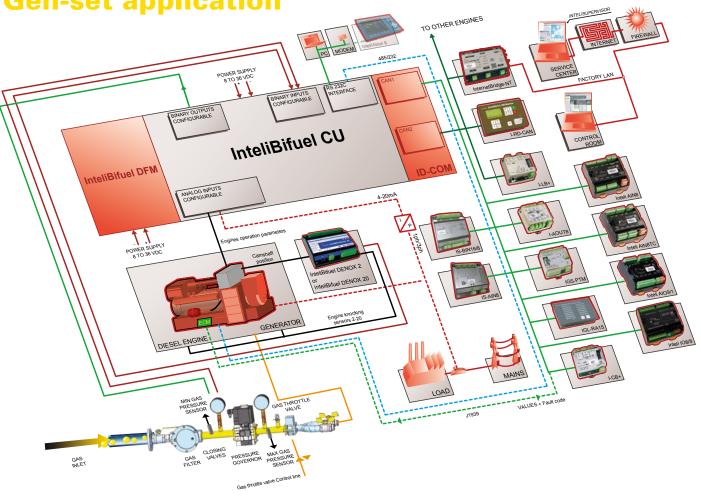
Since introduction of ComAp bi-fuel system few years ago, Ottomotores has successfully integrated the InteliBifuel solution into their product portfolio and started to offer bi-fuel range of gensets with InteliBifuel as a standard product.

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

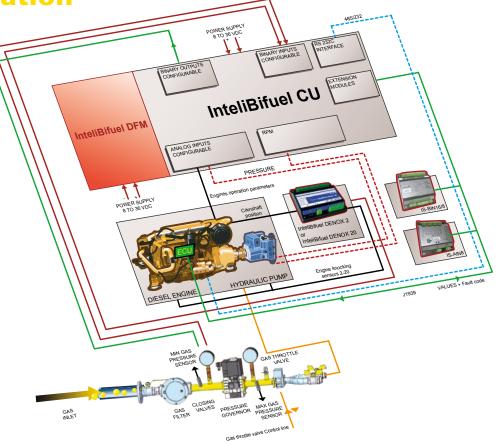




Gen-set application



Pump application



About ComAp





ComAp

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

Excellent and reliable product solutions

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



ComAp products represent some of the most reliable solutions on the market today. Every component and product undergoes the most rigorous standards during manufacture, with every stage being undertaken in accordance with international ISO 9001 certification. Our products are backed with the approvals from major Marine Certification Societies. Accreditation



at the highest-level breeds confidence, and every ComAp product is supplied with an appropriate warranty and after-sales support for complete peace of mind.

People make the difference

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

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

At the heart of this process is a strong desire to exceed our customers' expectations by finding outstanding solutions for them and drawing upon the company's most valuable







asset – people. Over 80 % of ComAp employees are graduates with specialized electronic and programming knowledge appropriate to the innovative development of market-orientated engine management systems. This unique know-how is matched by ComAp's significant investment at every stage of the research and development process, resulting in the creation of leading edge modern development facilities. ComAp 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.

2014

ComAp's WebSupervisor is translated into its 10th language: Portuguese.





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



Simply register online for our hands-on training courses.

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)

Product name	Order code
InteliNano ^{NT} MRS	IN-NT MRS
InteliNano ^{NT} AMF	IN-NT AMF
InteliNano ^{NT} Plus	IN-NT PLUS
InteliLite ^{N™} 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	INTELIPRO
MainsPro	MAINSPRO
InteliDrive Nano	ID-NANO
InteliDrive Nano WP	ID-NANO WP
InteliDrive Lite	ID-FLX-LITE
InteliDrive Lite EM	INTELIDRIVE 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	
InteliBifuel 20	
InteliVision 5	INTELIVISION 5
InteliVision 8	INTELIVISION 8
InternetBridge-NT	IB-NT





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

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