

# CELL TOWERS

POWER SOLUTIONS

POWER SYSTEM SOLUTIONS  
FOR TELECOM BTS SITE



100% MADE IN ITALY



[WWW.VISA.IT](http://WWW.VISA.IT)

RECOMMENDED POWER GENERATORS  
FOR TELECOM APPLICATIONS  
FOX, BIGFOX AND GALAXY AIR

 ENGLISH VERSION

# ONIS VISA POWER SYSTEMS FOR TELECOM APPLICATIONS

- POWER RANGE 7 - 48 KW
- LARGE RANGE OF SPECIAL TELCO OPTIONALS
- BACK-UP POWER OR PRIME POWER FOR REMOTE AREAS INSTALLATIONS
- BUILT FOR LONG AUTONOMY AND EXTENDED SERVICE MAINTENANCE
- LOW CAPEX AND OPEX





A PARTNER TO DRIVE GROWTH



# ENERGY WITHOUT BORDERS

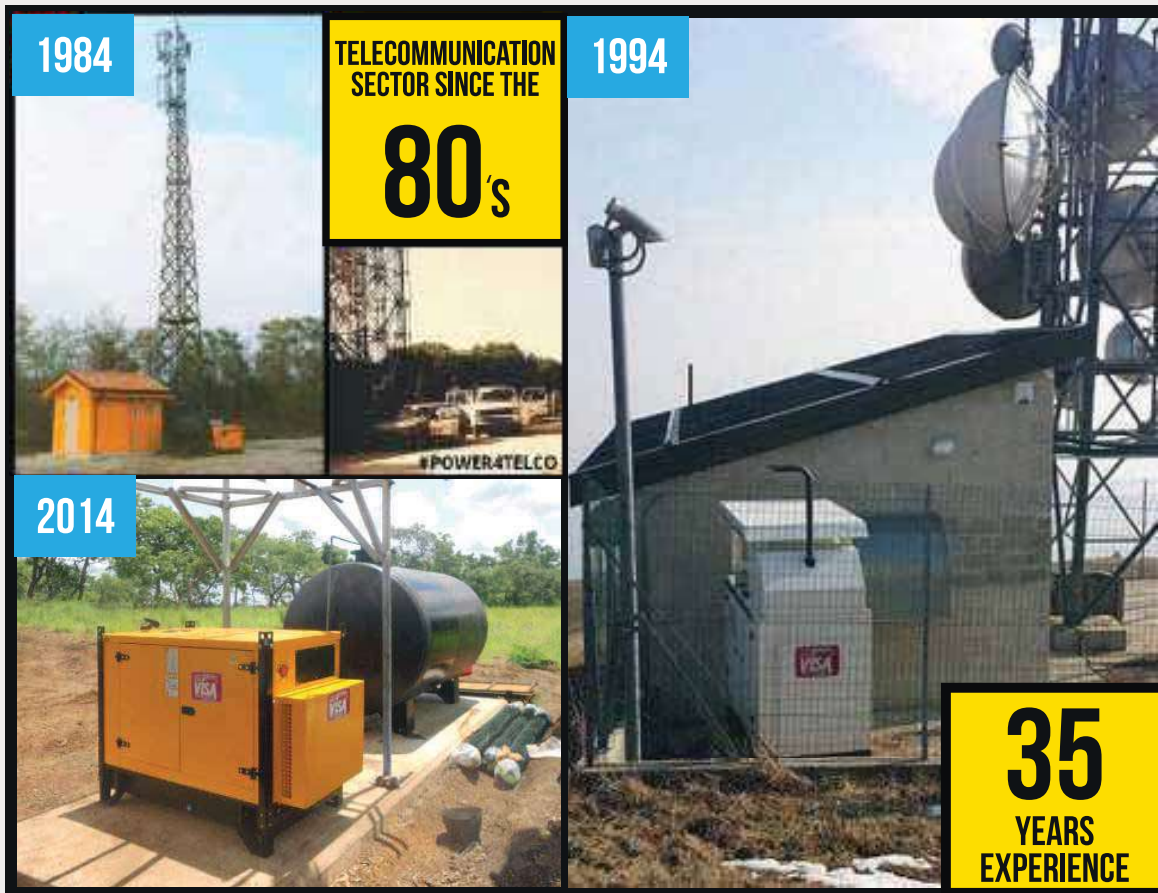
In an interconnected world, Visa offers a product created for those who live in a fast paced environment. Onis Visa generating sets have been specifically designed for Telecommunications; these have been developed adhering to the current international standards which meet the needs of those who work in this sector day to day.



**CLOSING THE DIGITAL DIVIDE IS VITAL FOR DEVELOPMENT AND ECONOMIC GROWTH.**



## PROVIDING POWER SUPPLY FOR TELECOMMUNICATION SINCE THE 1980'S



## WE KNOW THE REQUIREMENTS ON THE BTS POWER SUPPLY

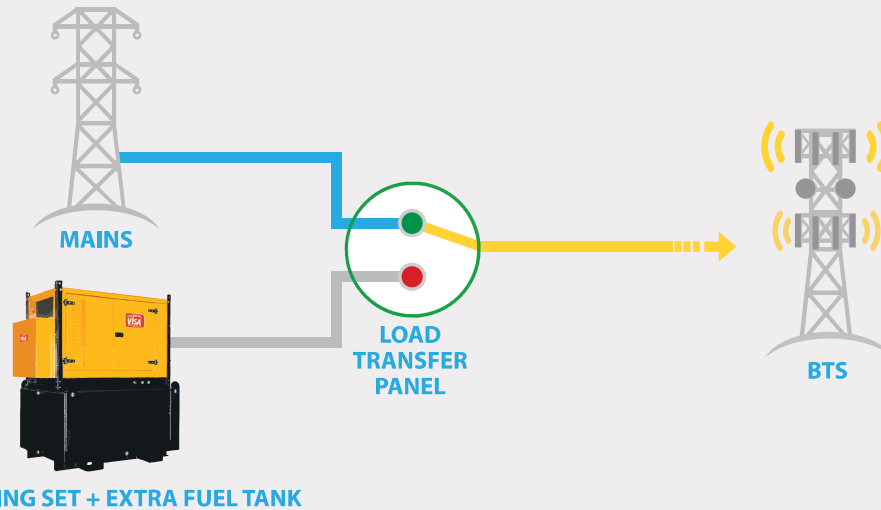
Visa SpA has been serving the needs of the telecommunication sector for over 35 years with power generating solutions.

For reliable power supply every off-grid BTS needs a generating set. In fact, even those connected to the grid are likely to need a genset as back-up (particularly if located in a region with an unreliable grid infrastructure).

With many BTS' located in remote areas, telecom operators and tower companies require the most suitable solutions to manage their sites more effectively, reducing fuel consumption, lowering maintenance and refilling trips to the field and reducing operating costs (OPEX).

Visa SpA is the ideal partner for telecom companies; having the right experience and know-how required by supplying thousands of genset BTS applications every year.

## ① BACK-UP AC DIESEL GENERATING SETS USED AS STAND-BY TO THE MAINS

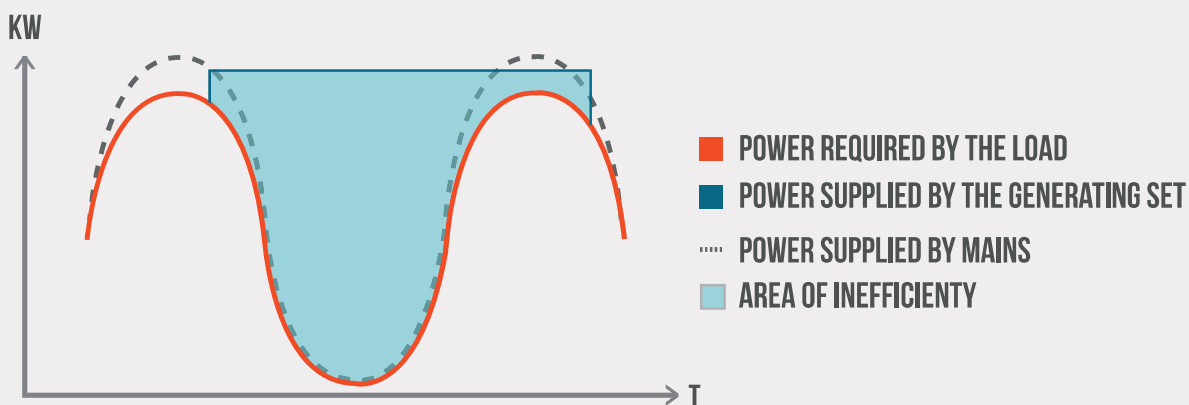


### GENERATING SET WITH LOAD TRANSFER PANEL TO SWITCH THE POWER SOURCE

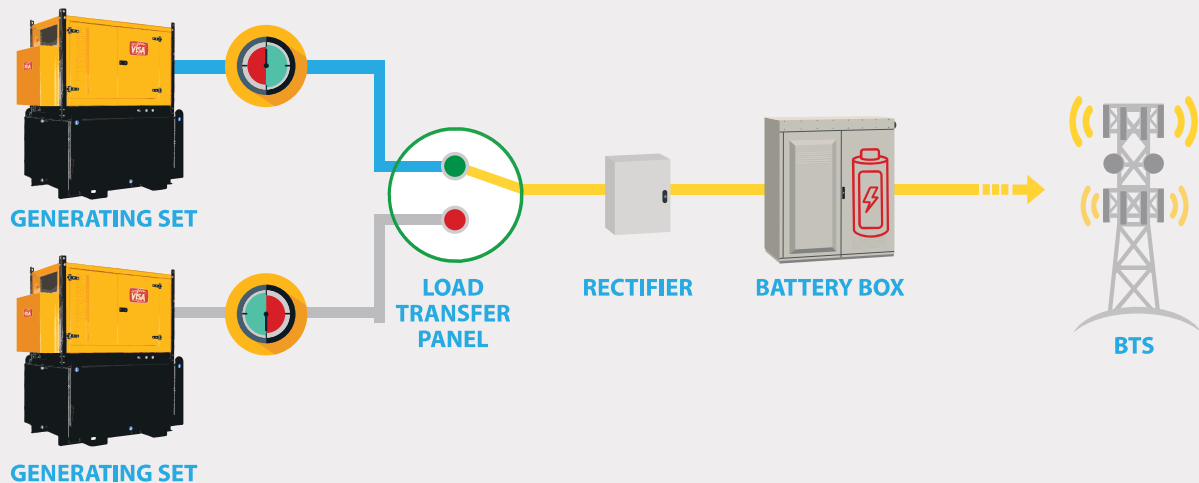
Where the Mains is available, the BTS can be directly grid connected and having as power back-up an AC Generating Set in standby mode.

If the Mains supply is interrupted or it does not respect the parameters set, the load shifts to the generating set, that is started automatically, and after having checked the electric and mechanical parameters which must be within certain limits, will feed the BTS.

The genset works until the Mains returns or the conditions of use are restored, then the load is shifted back to the Mains power supply and the generating set reverts back in stand-by mode.



## ② DUAL AC GENERATING SETS - 24/7

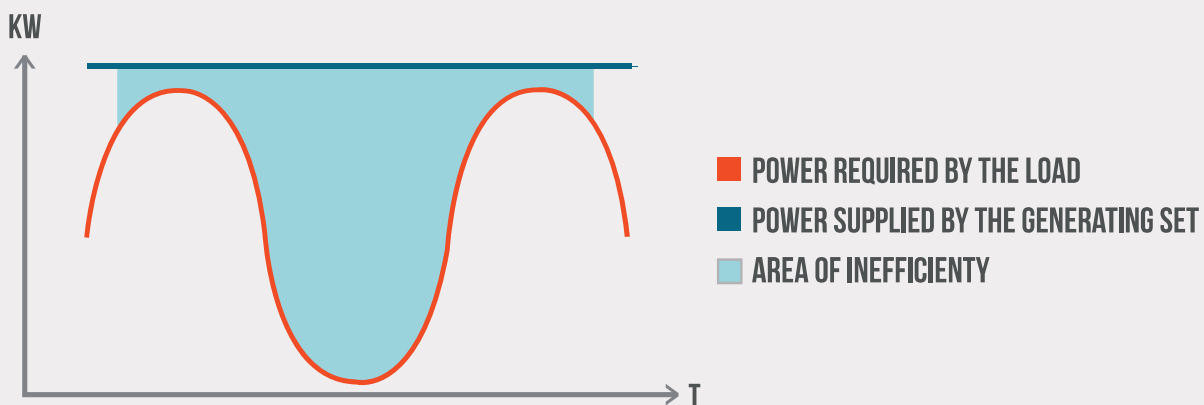


### TWIN GENERATING SET FOR OFF GRID APPLICATIONS

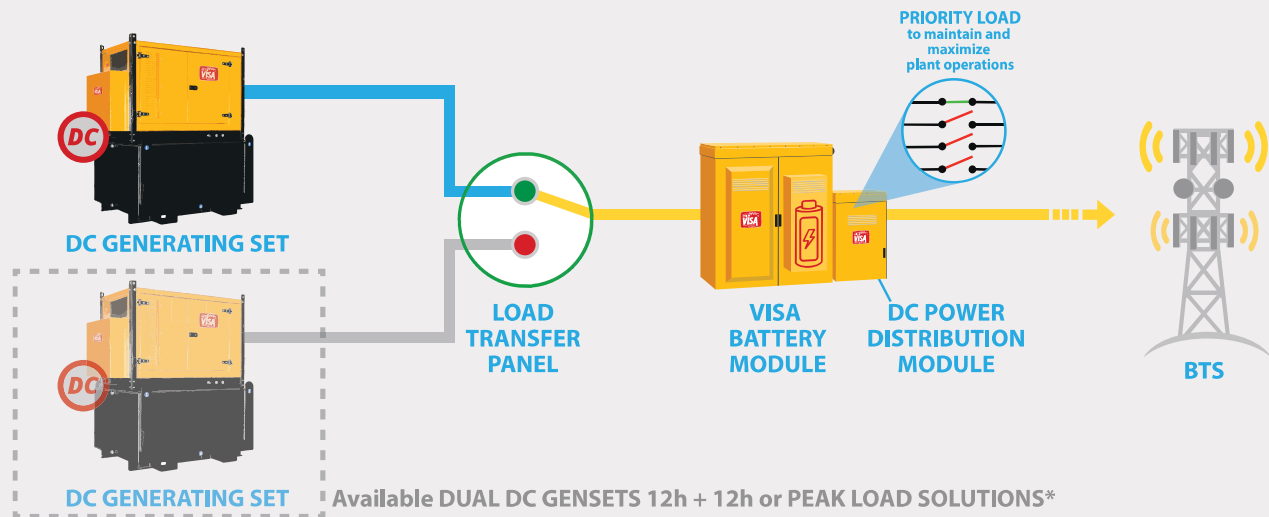
When the grid is not available, this application is a good solution because the BTS is fed by the batteries charged by one or two generating sets.

In order to reduce the genset's operating hours and related management costs, the BTS load are fed by batteries. When those batteries run down, the genset itself will recharge. An additional genset is added as a stand-by, in order to build in redundancy; make the system fail safe.

The control system has the function to evenly distribute the working hours among the gensets, so that all machines will be subjected to the same level of wear and tear.



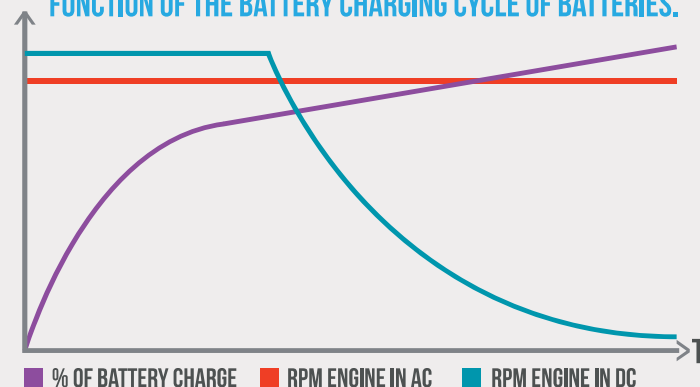
### ③ DC GENSET (VARIABLE SPEED) THAT SUPPLIES A HYBRID CONFIGURATION



## OFF GRID APPLICATIONS GENERATING SET

This application is suitable to feed transmission sites in remote areas, where no connections to the Mains are available (no grid area). In this case, the BTS is exclusively supplied by batteries charged by one or two generating sets. In order to further reduce the system's operating costs, where the BTS' electrical loadings are supplied by batteries, a DC genset at variable speed is used, equipped with an alternator with PMG and an AC/DC converter or PMG with direct supply - 48VDC, commonly used to charge the batteries at 48 VDC. If an AC generator works with a medium-low load, the use of it at variable speed in DC allows a reduction of fuel consumption that corresponds to a higher efficiency of the plant. A variable speed genset works at a speed that grants the maximum efficiency depending on the electric power required, reducing the noise level and lengthening the maintenance intervals. An additional genset can be added to the first one in mutual stand-by mode, in order to increase the system's level of safety. The control system has the function to evenly distribute the working hours among the gensets, so that all machines will be subjected to the same level of wear and tear.

### % SYNCHRONOUS GENSET VS VARIABLE SPEED GENSET, AS A FUNCTION OF THE BATTERY CHARGING CYCLE OF BATTERIES.



**PHASE ONE:** At constant current it requires more power to the generator and is used to restart the current that had been previously discharged.

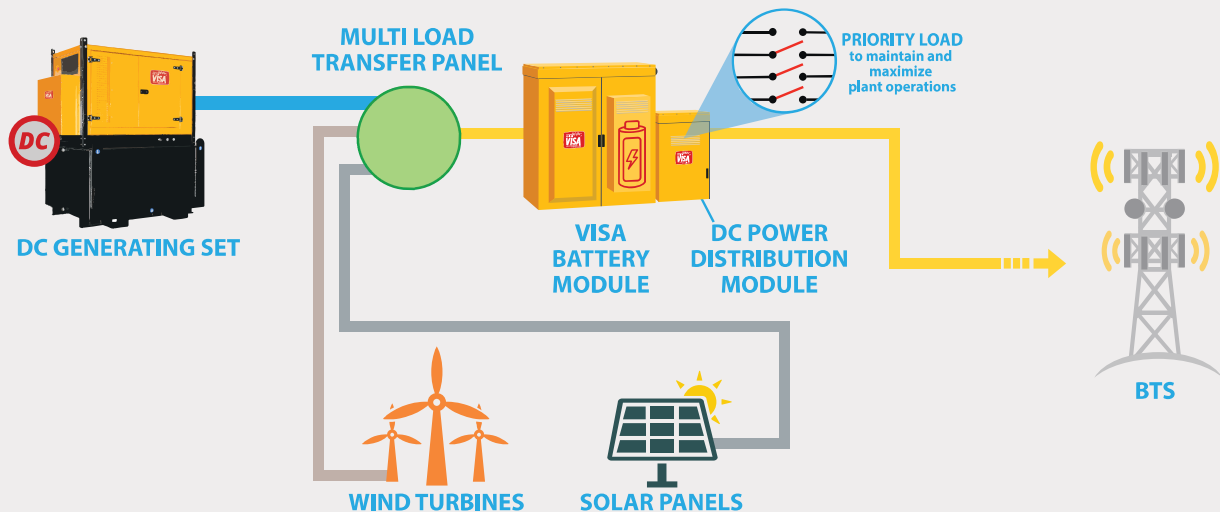
**PHASE TWO:** At constant voltage it is used to complete the charge. Current and power values required to the genset decrease until they reach a very low level.

Thanks to our intelligent device GUARD TOUCH, the DC variable speed generating set regulates the engine speed depending on the real amount of power needed during the charge cycle of the battery, which allows a reduction of fuel consumption and prevents excessive wear of the engine. Otherwise, the standard AC generating set always runs at full speed, regardless of the power required during the charging phase of the battery.

\* The 2 gensets can work in parallel on the DC bus so the ATS is no longer necessary. This is useful in case of increased load.

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## DC GENSET (VAR. SPEED) IN HYBRID CONFIGURATION WITH SOLAR PANELS AND/OR WIND TURBINES.



## HYBRID CONFIGURATION COMBINED WITH OF GREEN SOLUTIONS

This application is suitable to feed telecommunication sites in remote areas, where there are no connections to the Mains, because the BTS is exclusively fed by batteries that have been charged by one or two generating sets, with the support of green energy coming from renewable technologies. In addition to the benefits coming from the use of the genset in DC mode, as previously mentioned, the system is also suitable to interact with one or more sophisticated technologies, capable of producing energy from renewable sources, such as solar and wind power. This can be considered an additional advantage in terms of reduction both of fuel consumption and of management costs.

Since the system has been designed to be flexible, as well as "Customer Friendly," it allows that synergy to be activated at any time, even in those sites where at the time of their construction the system was not yet available. This solution ensures a low environmental impact.





## A GENUINE PARTNER, NOT JUST A SUPPLIER

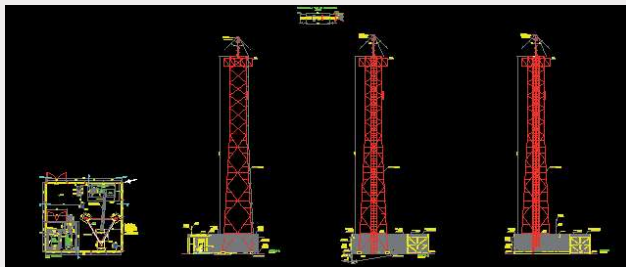
### TOGETHER TO MAKE THINGS EASIER

Step by step, Visa supports its clients in choosing and defining the most suitable solution and application to address the clients' needs.

The design of the electrical part of the complex systems requires integration of all the elements involved in the project, perfectly interfacing communication towers and complex systems. Our highly qualified Telco division is at your disposal for the complete design of the electrical supply referring to new Telecommunication applications or to restore the existing ones, supporting the clients in the choice of genset and its equipment, as well as in the supply of different components, such as control panels, battery boxes, rectifiers, BTS, etc.



## ADVANCED SYNERGY FOR EXCELLENT RESULTS



### FROM THE IDEA TO THE PRODUCT, WE ARE THINKING OF YOU!

An idea triggers the creative process that rationally assumes its own form and creates a very personal feature: that is how the Onis Visa product is created.

The work, always carried out with a sense of responsibility and discipline, and with care poured into every stage of the process, be it technical or conceptual, puts the client at its center.



## SCHEDULE OF MAINTENANCE /SERVICE

It is generally a good idea to establish and adhere to a maintenance /service schedule based on the specific power application and the severity of the environment. For example, if the generator set will be used frequently or subjected to extreme operating conditions, the recommended service intervals should be shortened accordingly. Some of the factors that require more frequent maintenance include:

- Using the diesel generator set for continuous duty (prime power)
- Extreme ambient temperatures
- Exposure to weather
- Exposure to salt water
- Exposure to dust, sand, or other airborne contaminants

If the generator set will be subjected to some or all of these extreme operating conditions, it is best to consult with the engine manufacturer to develop an appropriate maintenance schedule. The best way to keep track of maintenance intervals is to use the running-time meter on the generator set to keep an accurate log of all services performed. This log also will be important for warranty support. The Table shows a typical diesel engine maintenance schedule for generator sets.

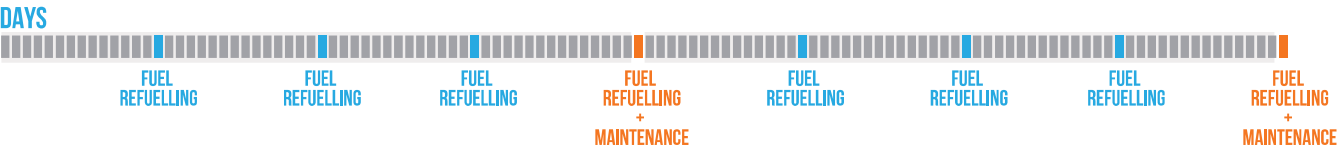
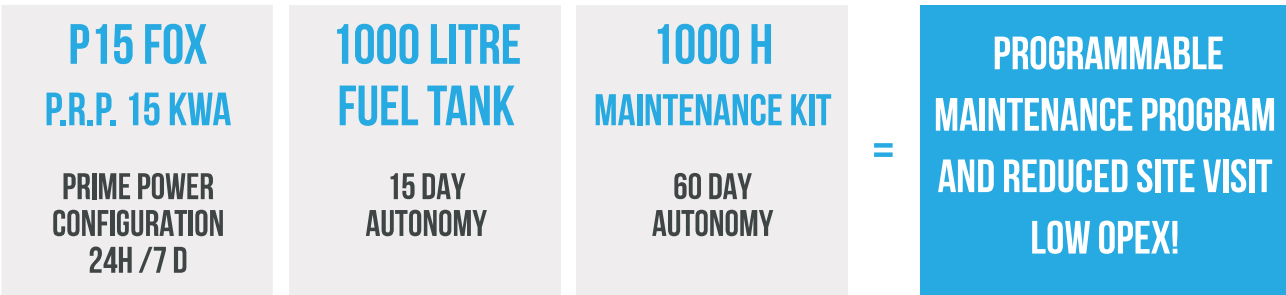
### MAINTENANCE SCHEDULE FOR GENERATOR SETS IN BACK UP MODE

Preventive maintenance for diesel engine generators plays a critical role in maximizing the reliability of these standby systems and reducing the financial and life-safety risks associated with the loss of power. Preventive maintenance also minimizes the need for repairs and reduces equipment life cycle costs.

Maintenance items	6 months	Yearly
Change Oil and Filter	X	
Change coolant filter	X	
Clean crankcase breather	X	
Change air cleaner elements	X	
Check radiator hoses	X	
Change fuel Filters	X	
Clean cooling systems		X

### MAINTENANCE SCHEDULE FOR DC GENERATOR SETS IN REMOTE AREAS - 24H RUNNING-TIME

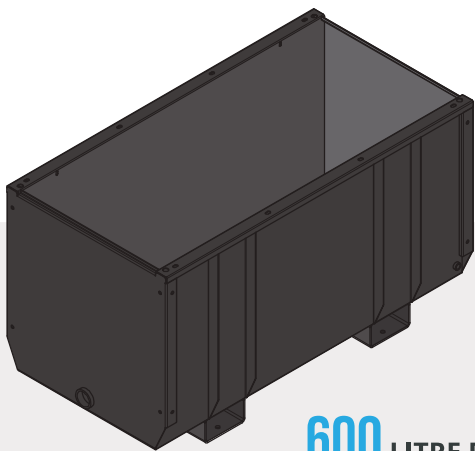
Our special range of generating sets include a special kit that allows for longer maintenance intervals up to 1000 / 2000 / 4000 hours.



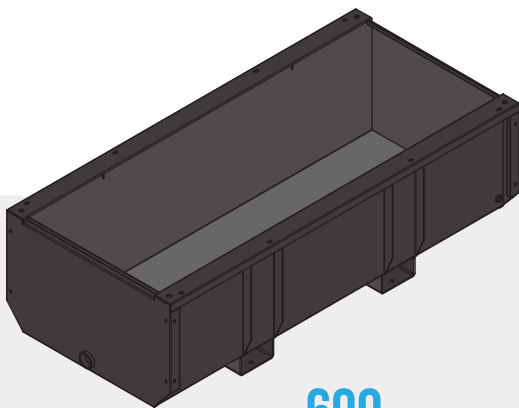
## BUILT FOR LOW MAINTENANCE, EXTENDED SERVICE INTERVALS AND LONG AUTONOMY

Visa SpA developed several high-performance solutions for BTS sites. Generator sets with more autonomy, reduced refueling frequency and longer maintenance intervals, developed for telecommunications companies, transmission towers, radar, data centers. These gensets guarantee reduced operation costs, especially for those that will be installed on remote sites. This special range of generating sets include a special kit that allows for longer maintenance intervals up to 1000 / 2000 / 4000 hours.

### LONG RUNNING TELCO KIT



**600** LITRE FUEL TANK  
FOX VERSION



**600** LITRE FUEL TANK  
BIGFOX VERSION

#### OVERSIZE FUEL TANK

The oversize fuel tank allows a considerable reduction of site visits for refueling. These are without any doubt, highly appreciated improvements for the telecom sector, where the gensets are often located in remote areas with difficult access.

Due to the fact that many applications need different size tanks. This range of optionals is made up of high quality components, with high safety requirements and in different capacities.

#### DIFFERENT SIZES AND AVAILABILITY



● AVAILABLE ● ON REQUEST



**REDUCTION OF  
SITE VISITS  
FOR REFUELING**



### PREMIUM OIL FILTER - LONG LIFE

Oil is the life-blood of an engine, which means the oil filter should never be taken for granted, especially in harsh heavy-duty environments. This oil filter is engineered to increase work hours of the engine between oil changes by up to 50 percent, thus reducing down time and allowing fleets to significantly extend oil change intervals.

Sturdy element supports designed to resist vibration, and high and low temperatures, which will not deform under constant spring-load pressure.



**PROTECT THE ENGINE BY KEEPING HARMFUL PARTICLES AND DIRT OUT, PREVENTING PREMATURE WEAR AND ENGINE FAILURE**

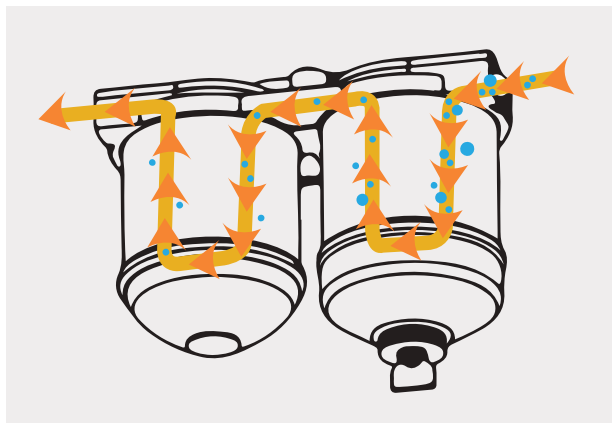


### DOUBLE DIESEL FUEL FILTER / WATER SEPARATOR

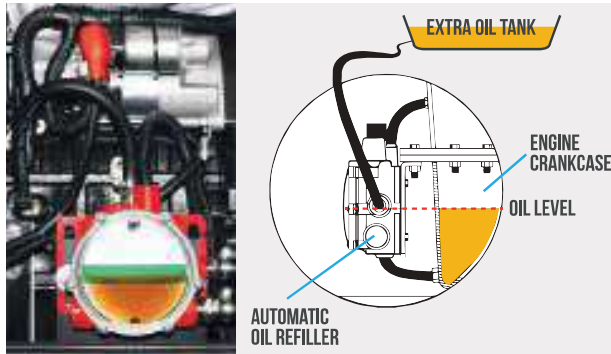
The double fuel filter remove up to 100% of the damaging water and solid contaminants from diesel fuel. The filter eliminates water from fuel before reaching the fuel pump and injectors. This prevents the major cause of diesel fuel injection system failure:

- It prolongs system life by eliminating pump and injector overhauls caused by water contaminated fuel.

- It reduces the need to repair the fuel pump and/or injectors that could easily tie up equipment for one or two days. The loss of income in just a few hours of equipment downtime.



**EVERY DROP OF FUEL THROUGH BOTH FILTERS EVERY TIME IT ENTERS THE UNIT FOR TRULY DOUBLE FILTERED ENGINE FUEL.**



**ITS GIVES AUTOMATIC MAINTENANCE OF ENGINE CRANKCASE OIL LEVEL, FOR POWER GENERATOR ENGINES.**



### AUTOMATIC OIL REFILLER

Adjusted to the correct running-oil-level, the oil maintainer will replenish engine lubricating oil as it is used. The devices reduce ongoing oil level maintenance and eliminate problems due to oil underfill or overfill.

The low-level switch will alarm and/or shutdown the equipment if supply oil is lost and the equipment continues to use oil.

### BACK UP ENGINE OIL STORAGE TANK

Oil tank for auto refilling oil system:  
Automatic maintenance of engine oil with built-in tank as an extra oil storage.

## EXTEND OIL CHANGE MAINTENANCE INTERVAL WITH ADDITIONAL OIL TANK



### MONITORING OF EQUIPMENT OPERATIONAL CAPABILITY

More than 50 different measurements shown on the different pages of the control panel, possibility to do statistics in time.

### BLACK BOX PREDICTIVE MAINTENANCE SCHEDULING

Up to 2300 events recorded in the black box.

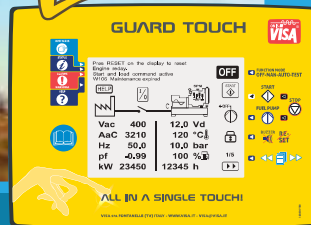
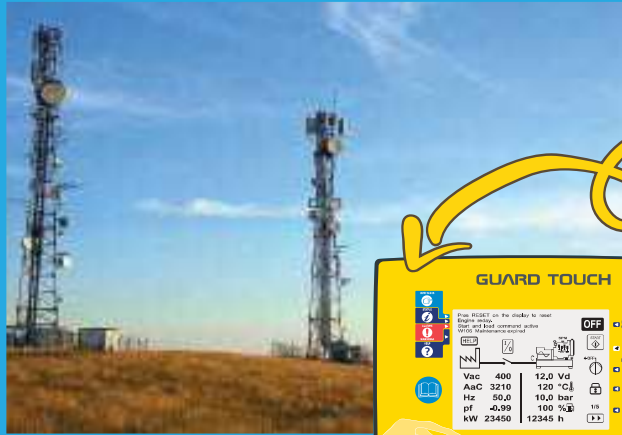
### MARCHE DEGRADEE

In case of a controller failure (lightning or other causes), Visa SpA provides the "marche dégradée", an optional system consisting of a manual starting key, mounted on board, and a protection circuit that gets activated in case of high temperature or low engine oil pressure. That system allows the use of the generating set and the continuity of the service with the standard essential protections.

### MANAGE SERVICE WITH AUTHORISED KEY

Selector to set the genset's functioning in OFF-MAN AUTO-TEST mode and designed to operate only with the key inserted.

Through the use of a specific key, once the maintenance operations are finished, the operator is allowed to remove the key only if it is set in the AUTO position, always guaranteeing that the genset is functioning in automatic mode, before the operator gives back the key to the service manager.



**WORKING IN THE OFFICE IS  
LIKE BEING IN THE FIELD**

### EQUIPMENT MONITORING OPERATIONAL CAPABILITY

Access common genset parameters: oil pressure, engine temperature, power output, diesel levels, engine run time and engine RPM. More than 50 different measurements.

### REMOTE OPERATION AND CONTROL

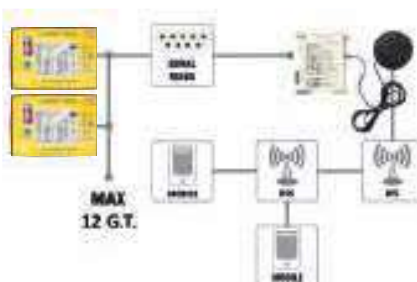
Remotely start and stop your generator in the field from any location. Remotely acknowledge generated alarms. Reduce expensive on-site maintenance trips.

### BLACK BOX PREVENTIVE MAINTENANCE SCHEDULES

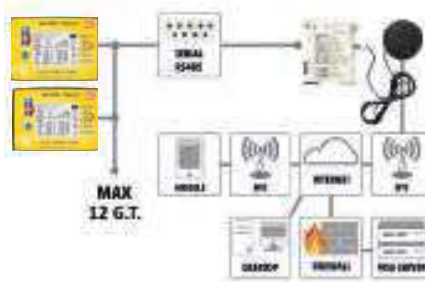
Telecom tower companies or mobile operators can benefit from predictive maintenance of their sites, which contributes additional OPEX savings. Prepare a maintenance plan for your gensets setting up to 16 different maintenance intervals, programmable by month or working hours. 2300 events recorded in the BLACK BOX

### MONITORING MANAGEMENT

#### GSM



#### GPRS

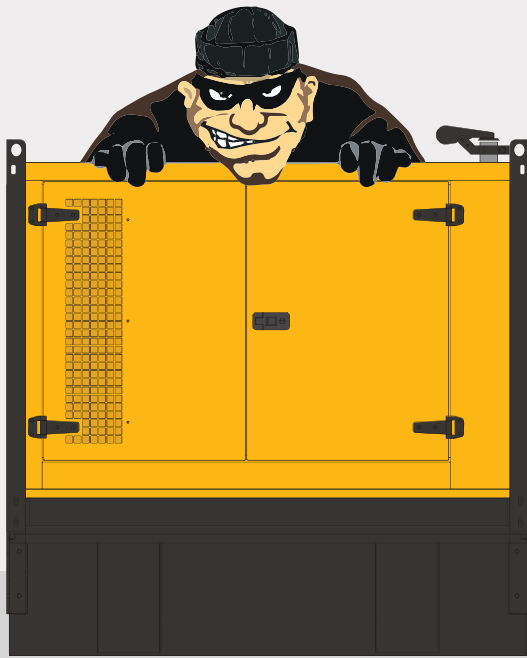


#### WEB APP



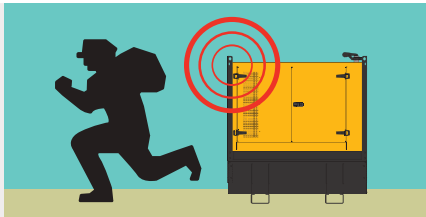
The GSM-GPRS modem is a flexible tool designed for genset management, allowing to control these via multiple channels.

Remote control and monitoring for all Onis VISA generators.

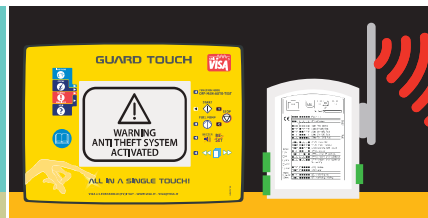


# ANTI FUEL THEFT AND LEAK DETECTION SYSTEM

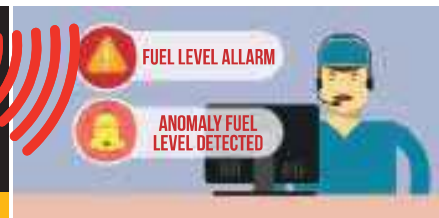
REAL TIME PROTECTION



FUEL THEFT DETECTION



GUARD TOUCH + GSM MODULE IN ALERT MODE



WEB MONITORING ALERT

## DETECT UNAUTHORIZED FUEL USAGE, LEAKS AND LEVELS

Monitoring fuel level in the tanks for power generators is critical, not only to ensure smooth operation and provide constant power for the BTS site, but increasing fuel level monitoring is used to protect the fuel asset.

### ANTI FUEL THEFT OPTIONALS - KEY FEATURES:

- lock and burglar-proof screws;
- Anti-theft fuel cap;
- Guard touch with GSM module with alerting feature to one of 15 notification types you can receive an SMS, E-Mail or SNMP. Alert to allow your security personnel to respond to the situation appropriately by sounding alarms, triggering deterrent devices via relay or placing an automatic call to local police stations in the area.

# ARMOR YOUR GENERATOR



# POWERING TELECOM APPLICATIONS WITH FOX



# FOX

FROM 9 TO 20 KVA

**AVAILABLE ENGINES**



**AVAILABLE ALTERNATORS**



The Onis Visa FOX is a fully integrated power generation system, providing optimum performance, reliability and versatility for stationery standby, prime power, and continuous duty applications at remote locations. The compact and sturdy design and maximum noise reduction make it suitable for all telecom sites.

Well-supplied equipment and a large range of accessories are available for customization specifically designed for TLC applications.

As with all Visa products, all the unit's parts are subject to a strict operating test involving over 30 checks prior to delivery.

**RENEWABLE SURCES  
PLUG AND PLAY**



WIND TURBINE

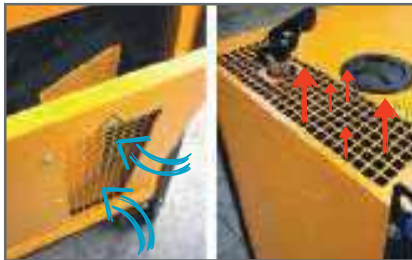


SOLAR PLANT





# POWERING TELECOM APPLICATIONS WITH FOX



## AIR INLET AND THE COOLING SYSTEM

Three large, protected, sound attenuated openings, guarantee good cooling air flow. The air intake is located in the back, avoiding the recirculation of hot air that is expelled from the front top part of the canopy.



## DESIGN FOR MAINTENANCE ACCESSIBILITY

Total access to the main components from the side doors making control and maintenance operations easy to carry out.



## SOUND ATTENUATION SYSTEM

Galvanised sound attenuated enclosures. Long lasting, durable enclosure with excellent sound reduction for residential areas. Sound attenuation using high-density rock wool and synthetic fibers; polyester fiber with low wear and tear and easier maintenance. Moreover, polyester fiber allows a more pleasant aesthetic result.



## HEAT SHIELDED

Vulnerable parts are heat shielded from high temperatures.





# POWERING TELECOM APPLICATIONS WITH FOX



### INSPECTION POINTS

The FOX generating set has been studied in minimal detail; a removable lid allows easy access for radiator inspection.



### PAINTING

Galvanized sheet steel is used to manufacture the canopy: minimum zinc thickness is 20 micron. The powder-coated thermoset paint has a polyester resin base highly resistant to atmospheric agents. The painting process is preceded by a phospho-degreasing cycle with a demineralised water rinse and then dried. Minimum paint thickness is 70 micron. Durability class is **C3-M** according to **UNI EN ISO 12944 -2**.



### CONTROL PANEL

The Fox includes, as standard, the well tested and reliable **Guard Evolution controller**, equipped with a very efficient software that has no equal in the market in terms of accuracy and number of functions. As optional we deal with a wide range of brands and parts, including:



## STOCKABLE IN CONTAINER HC



**P 9 FOX**  
UP TO **46** UNITS IN 40" CONTAINER  
**P 14/21 FOX**  
UP TO **30** UNITS IN 40" CONTAINER

CONSIDERING A STANDARD GE VERSION WITH 50 L FUEL TANK

FOX is stackable and allows space to be optimised for transport.

A 40' HC container contains up to 46 stacked units.

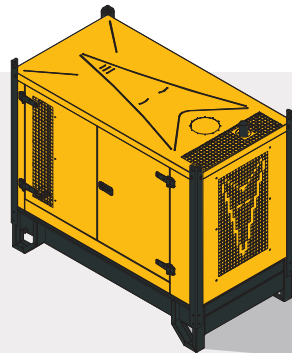
ONIS VISA Best Sellers

# FOX



# 1400 UNITS SOLD IN 2015

## OUR MOST POPULAR PRODUCT



## ENCLOSURE


**Model P9 FOX + 1000 I (optional) Fuel Tank.**

The genset photo displayed may be an example only.  
Because of the numerous possible combinations of genset models, colors and optionals, the genset pictures may not match your genset exactly.

## MAIN DATA

Continuous Power (PRP)	9.0 kVA
Continuous Power (PRP)	7.2 kW
Stand-by Power (LTP)	10.0 kVA
Stand-by Power (LTP)	8.8 kW
Voltage · Frequency · Power Factor	400V·50Hz·0.8cosφ
Sound pressure 7 metres	62.0 dBA

## DIMENSIONS AND WEIGHT

Width	770 mm
Length	1470 mm
Height	1330 mm
Weight	515 kg

## GENERAL DATA

ENGINE		
Engine brand	PERKINS	
Engine model	403A-11G1	
Cylinders	3	nr
Speed	1500	r.p.m.
Cubic capacity	1.13	l
Air intake	Aspirated	
Standard voltage	12	Vdc
Optional voltage	-	Vdc
Sae	5-6 <sup>1/2</sup>	
BMEP	-	kPa
Cooling	Water	
Flywheel P.R.P. Power	8.6	kW
Flywheel Stand-by Power	9.4	kW
Fuel Cons. at 100% (L.T.P.)	2.9	l/h
Fuel Cons. at 100% (P.R.P.)	2.6	l/h
Fuel Cons. at 75% (P.R.P.)	2.0	l/h
Fuel Cons. at 50% (P.R.P.)	1.5	l/h
Fuel Cons. at 25% (P.R.P.)	-	l/h
Engine speed regulator	mechanical	
Precision class	-	+/-%
Oil quantity	4.9	l
Engine Antifreeze capacity	3.3	l
Heat from radiator	8.3	kW
Heat from exhaust	7.3	kW
Heat from radiation	2.1	kW
Exhaust temperature	368.4	°C
Cooling air flow	26.40	m <sup>3</sup> /min
Combustion air flow	0.70	kg/h
Exhaust gas flow	1.66	kg/h

## ALTERNATOR

ALTERNATOR			
Alternator brand	STAMFORD	MECCALTE	
Alternator model	UCI224E	ECP3-1L/4	
P.R.P. Power	10.0		kVA
L.T.P. Power	11.0		kVA
Connection	Series Star		
Phases	3F+N		
Winding	12 term. W 311		
Terminal Number	12		nr
IP Protection	23		
Electronic regulator	AS480	DSR	
Precision	1.5		+/-%

## BASEFRAME

BASEFRAME					
Model	FOX				
standard fuel tank	55				
Long range fuel tank	600	1000	600	1000	l
Hours at 75% of load	300	500	300	500	h

## CANOPY &amp; SILENCER

CANOPY & SILENCER		
Canopy model	FOX	
Silencer model	MSR/a 35	
Silencer outlet diameter	45.0	
	mm	

Standard reference conditions: temperature 25°C, altitude 100m asl, relative humidity 30%, atmospheric pressure 100 kPa (1 bar), power factor 0.8 lag, balanced load - non distortional. Fuel consumption is nominal and refers to specific weight 0.850kg/l. Sound power values refer to free field conditions; the installation site may influence the values. Dimensions, weights and other specifications contained in the technical data sheet and related attachments are nominal, subject to tolerances and refer to the model with standard equipment; any optional and additional equipment/accessories can modify weight, dimensions, performance. P.R.P. Prime Power-Continuous power at variable load: The power that a genset can supply in continuous service at a variable load for an unlimited number of hours per year while respecting the maintenance intervals established in the environmental conditions stated by the Manufacturer, according to ISO8528-1. The average power supplied over time and any applicable overload must be less than the percentages stated by the Manufacturer. L.T.P. Limited-time running power-Limited power: The maximum power that a genset can supply for a limited time respecting the maintenance intervals established in the environmental conditions stated by the Manufacturer according to ISO 8528-1. The number of hours per year is stated by the Manufacturer. Overload is not permitted.

The data contained in this document is nominal and refers to the standard equipped model and is not binding. Visa S.p.A. reserves the right to revise the information without notice per our policy of continuous product development and improvement.



## ENCLOSURE



**Model P14 FOX + 1000 I (optional) Fuel Tank.**  
The genset photo displayed may be an example only.  
Because of the numerous possible combinations of genset models, colors and optional, the genset pictures may not match your genset exactly.

## MAIN DATA

Continuous Power (PRP)	13.1 kVA
Continuous Power (PRP)	10.5 kW
Stand-by Power (LTP)	14.5 kVA
Stand-by Power (LTP)	11.6 kW
Voltage · Frequency · Power Factor	400V-50Hz-0.8cosφ
Sound pressure 7 metres	<b>63.0 dBA</b>

## DIMENSIONS AND WEIGHT

Width	770 mm
Length	1660 mm
Height	1330 mm
Weight	650 kg

## GENERAL DATA

ENGINE		
Engine brand	PERKINS	
Engine model	403A-15G1	
Cylinders	3	nr
Speed	1500	r.p.m.
Cubic capacity	1.50	l
Air intake	Aspirated	
Standard voltage	12	Vdc
Optional voltage	-	Vdc
Sae	4-7 <sup>1/2</sup>	
BMEP	650	kPa
Cooling	Water	
Flywheel P.R.P. Power	12.2	kW
Flywheel Stand-by Power	13.5	kW
Fuel Cons. at 100% (L.T.P.)	4.1	l/h
Fuel Cons. at 100% (P.R.P.)	3.7	l/h
Fuel Cons. at 75% (P.R.P.)	2.8	l/h
Fuel Cons. at 50% (P.R.P.)	2.1	l/h
Fuel Cons. at 25% (P.R.P.)	1.3	l/h
Engine speed regulator	mechanical	
Precision class	-	+/-%
Oil quantity	6.0	l
Engine Antifreeze capacity	2.6	l
Heat from radiator	11.6	kW
Heat from exhaust	9.3	kW
Heat from radiation	3.2	kW
Exhaust temperature	445	°C
Cooling air flow	25.20	m <sup>3</sup> /min
Combustion air flow	1.10	kg/h
Exhaust gas flow	2.70	kg/h

## ALTERNATOR

ALTERNATOR			
Alternator brand	STAMFORD	MECCALTE	
Alternator model	PI044G	ECP3-2L/4	
P.R.P. Power	15.0		kVA
L.T.P. Power	16.5		kVA
Connection	Series Star		
Phases	3F+N		
Winding	12 term. W 311		
Terminal Number	12		nr
IP Protection	23		
Electronic regulator	AS480	DSR	
Precision	1.0		+/-%

## BASEFRAME

BASEFRAME					
Model	FOX				
standard fuel tank	55				
Long range fuel tank	600	1000	600	1000	l
Hours at 75% of load	214	357	214	357	h

## CANOPY &amp; SILENCER

CANOPY & SILENCER		
Canopy model	FOX	
Silencer model	MSR/a 35	
Silencer outlet diameter	45.0	
	mm	

Standard reference conditions: temperature 25°C, altitude 100m asl, relative humidity 30%, atmospheric pressure 100 kPa (1 bar), power factor 0.8 lag, balanced load - non distortional. Fuel consumption is nominal and refers to specific weight 0.850kg/l. Sound power values refer to free field conditions; the installation site may influence the values. Dimensions, weights and other specifications contained in the technical data sheet and related attachments are nominal, subject to tolerances and refer to the model with standard equipment; any optional and additional equipment/accessories can modify weight, dimensions, performance. P.R.P. Prime Power-Continuous power at variable load: The power that a genset can supply in continuous service at a variable load for an unlimited number of hours per year while respecting the maintenance intervals established in the environmental conditions stated by the Manufacturer, according to ISO8528-1. The average power supplied over time and any applicable overload must be less than the percentages stated by the Manufacturer. L.T.P. Limited-time running power-Limited power: The maximum power that a genset can supply for a limited time respecting the maintenance intervals established in the environmental conditions stated by the Manufacturer according to ISO 8528-1. The number of hours per year is stated by the Manufacturer. Overload is not permitted.

The data contained in this document is nominal and refers to the standard equipped model and is not binding. Visa S.p.A. reserves the right to revise the information without notice per our policy of continuous product development and improvement.



## ENCLOSURE


**Model P15 FOX + 1000 I (optional) Fuel Tank.**

The genset photo displayed may be an example only. Because of the numerous possible combinations of genset models, colors and optional, the genset pictures may not match your genset exactly.

## MAIN DATA

Continuous Power (PRP)	15.0 kVA
Continuous Power (PRP)	12.0 kW
Stand-by Power (LTP)	16.5 kVA
Stand-by Power (LTP)	13.2 kW
Voltage · Frequency · Power Factor	400V·50Hz·0.8cosφ
Sound pressure 7 metres	<b>63.0 dBA</b>

## DIMENSIONS AND WEIGHT

Width	770 mm
Length	1660 mm
Height	1330 mm
Weight	650 kg

## GENERAL DATA

ENGINE		
Engine brand	PERKINS	
Engine model	403A-15G2	
Cylinders	3	nr
Speed	1500	r.p.m.
Cubic capacity	1.50	l
Air intake	Aspirated	
Standard voltage	12	Vdc
Optional voltage	-	Vdc
Sae	4-7 <sup>1/2</sup>	
BMEP	746	kPa
Cooling	Water	
Flywheel P.R.P. Power	14.0	kW
Flywheel Stand-by Power	15.4	kW
Fuel Cons. at 100% (L.T.P.)	5.0	l/h
Fuel Cons. at 100% (P.R.P.)	4.3	l/h
Fuel Cons. at 75% (P.R.P.)	3.1	l/h
Fuel Cons. at 50% (P.R.P.)	2.2	l/h
Fuel Cons. at 25% (P.R.P.)	1.5	l/h
Engine speed regulator	mechanical	
Precision class	-	+/-%
Oil quantity	6.0	l
Engine Antifreeze capacity	2.6	l
Heat from radiator	14.6	kW
Heat from exhaust	11.6	kW
Heat from radiation	4.0	kW
Exhaust temperature	580	°C
Cooling air flow	-	m <sup>3</sup> /min
Combustion air flow	1.00	kg/h
Exhaust gas flow	2.20	kg/h

## ALTERNATOR

ALTERNATOR			
Alternator brand	STAMFORD	MECCALTE	
Alternator model	PI044G	ECP3-3L/4	
P.R.P. Power	15.0		kVA
L.T.P. Power	16.5		kVA
Connection	Series Star		
Phases	3F+N		
Winding	12 term. W 311		
Terminal Number	12		nr
IP Protection	23		
Electronic regulator	AS480	DSR	
Precision	1.0		+/-%

## BASEFRAME

BASEFRAME					
Model	FOX				
standard fuel tank	55				
Long range fuel tank	600	1000	600	1000	l
Hours at 75% of load	193	323	193	323	h

## CANOPY &amp; SILENCER

CANOPY & SILENCER		
Canopy model	FOX	
Silencer model	MSR/a 35	
Silencer outlet diameter	45.0	
	mm	

Standard reference conditions: temperature 25°C, altitude 100m asl, relative humidity 30%, atmospheric pressure 100 kPa (1 bar), power factor 0.8 lag, balanced load - non distortional. Fuel consumption is nominal and refers to specific weight 0.850kg/l. Sound power values refer to free field conditions; the installation site may influence the values. Dimensions, weights and other specifications contained in the technical data sheet and related attachments are nominal, subject to tolerances and refer to the model with standard equipment; any optional and additional equipment/accessories can modify weight, dimensions, performance. P.R.P. Prime Power-Continuous power at variable load: The power that a genset can supply in continuous service at a variable load for an unlimited number of hours per year while respecting the maintenance intervals established in the environmental conditions stated by the Manufacturer, according to ISO8528-1. The average power supplied over time and any applicable overload must be less than the percentages stated by the Manufacturer. L.T.P. Limited-time running power-Limited power: The maximum power that a genset can supply for a limited time respecting the maintenance intervals established in the environmental conditions stated by the Manufacturer according to ISO 8528-1. The number of hours per year is stated by the Manufacturer. Overload is not permitted.

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## ENCLOSURE


**Model P21 FOX + 1000 l (optional) Fuel Tank.**

The genset photo displayed may be an example only.  
Because of the numerous possible combinations of genset models, colors and optionals, the genset pictures may not match your genset exactly.

## MAIN DATA

Continuous Power (PRP)	20.0 kVA
Continuous Power (PRP)	16.0 kW
Stand-by Power (LTP)	22.0 kVA
Stand-by Power (LTP)	17.6 kW
Voltage · Frequency · Power Factor	400V·50Hz·0.8cosφ
Sound pressure 7 metres	<b>65.0 dBA</b>

## DIMENSIONS AND WEIGHT

Width	770 mm
Length	1660 mm
Height	1330 mm
Weight	690 kg

## GENERAL DATA

ENGINE		
Engine brand	PERKINS	
Engine model	404A-22G1	
Cylinders	4	nr
Speed	1500	r.p.m.
Cubic capacity	2.22	l
Air intake	Aspirated	
Standard voltage	12	Vdc
Optional voltage	-	Vdc
Sae	4-7 <sup>1/2</sup>	
BMEP	669	kPa
Cooling	Water	
Flywheel P.R.P. Power	18.7	kW
Flywheel Stand-by Power	20.6	kW
Fuel Cons. at 100% (L.T.P.)	6.1	l/h
Fuel Cons. at 100% (P.R.P.)	5.3	l/h
Fuel Cons. at 75% (P.R.P.)	4.0	l/h
Fuel Cons. at 50% (P.R.P.)	2.9	l/h
Fuel Cons. at 25% (P.R.P.)	-	l/h
Engine speed regulator	mechanical	
Precision class	-	+/-%
Oil quantity	10.6	l
Engine Antifreeze capacity	3.6	l
Heat from radiator	17.0	kW
Heat from exhaust	3.3	kW
Heat from radiation	4.0	kW
Exhaust temperature	445	°C
Cooling air flow	29.40	m <sup>3</sup> /min
Combustion air flow	1.45	kg/h
Exhaust gas flow	3.64	kg/h

## ALTERNATOR

ALTERNATOR			
Alternator brand	STAMFORD	MECCALTE	
Alternator model	PI144G	ECP28-M/4	
P.R.P. Power	20.0		kVA
L.T.P. Power	22.0		kVA
Connection	Series Star		
Phases	3F+N		
Winding	12 term. W 311		
Terminal Number	12		nr
IP Protection	23		
Electronic regulator	AS480	DSR	
Precision	1.0		+/-%

## BASEFRAME

BASEFRAME					
Model	FOX				
standard fuel tank	55				
Long range fuel tank	600	1000	600	1000	l
Hours at 75% of load	150	250	150	250	h

## CANOPY &amp; SILENCER

CANOPY & SILENCER		
Canopy model	FOX	
Silencer model	MSR/a 35	
Silencer outlet diameter	45.0	
	mm	

Standard reference conditions: temperature 25°C, altitude 100m asl, relative humidity 30%, atmospheric pressure 100 kPa (1 bar), power factor 0.8 lag, balanced load - non distortional. Fuel consumption is nominal and refers to specific weight 0,850kg/l. Sound power values refer to free field conditions; the installation site may influence the values. Dimensions, weights and other specifications contained in the technical data sheet and related attachments are nominal, subject to tolerances and refer to the model with standard equipment; any optional and additional equipment/accessories can modify weight, dimensions, performance. P.R.P. Prime Power-Continuous power at variable load: The power that a genset can supply in continuous service at a variable load for an unlimited number of hours per year while respecting the maintenance intervals established in the environmental conditions stated by the Manufacturer, according to ISO8528-1. The average power supplied over time and any applicable overload must be less than the percentages stated by the Manufacturer. L.T.P. Limited-time running power-Limited power: The maximum power that a genset can supply for a limited time respecting the maintenance intervals established in the environmental conditions stated by the Manufacturer according to ISO 8528-1. The number of hours per year is stated by the Manufacturer. Overload is not permitted.

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# POWERING TELECOM APPLICATIONS WITH **BiGFOX**



# BiGFOX

**FROM 20 TO 60 KVA**

**AVAILABLE ENGINES**



**AVAILABLE ALTERNATORS**

**STAMFORD**

Onis Visa BIG FOX the smartest range, expands its own power up to 60.0 kVA. Compact and sturdy, low noise level and extremely versatile!

Available from 20.0 to 60.0 kVA, the BiGFOX can fully satisfy everyone's needs.

Suitable for continuous or emergency service, both for mobile and stationary applications, for civil or industrial use, BIG FOX represents a reliable solution for all those projects where power as well as compact size are required.

A wide choice of optional accessories is available to fully customize your BIG FOX version.

**RENEWABLE SURGES  
PLUG AND PLAY**



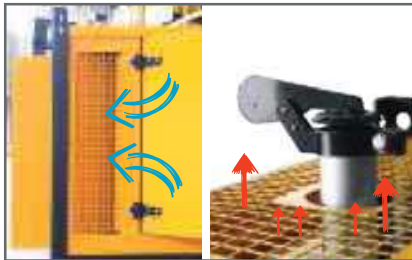
**WIND TURBINE**



**SOLAR PLANT**



# POWERING TELECOM APPLICATIONS WITH **BiGFOX**



## AIR INLET AND THE COOLING SYSTEM

Large, protected, sound attenuated openings, guarantee good cooling air flow. The air intake is located on top of the canopy, avoiding the recirculation. The exhaust gas line is complete with a rain cap.



## DESIGN FOR MAINTENANCE ACCESSIBILITY

BiG FOX has 4 wide doors with robust hinges that open completely to allow complete access to all components. The easily removable front panel facilitates access to the exhaust line and radiator instead the back panel gives full access to the alternator. Useful for cleaning and maintenance tasks



## SOUND ATTENUATION SYSTEM

Galvanised sound attenuated enclosures. Long lasting, durable enclosure with excellent sound reduction for residential areas. Sound attenuation using high-density rock wool and synthetic fibers; polyester fiber with low wear and tear and easier maintenance. Moreover, polyester fiber allows a more pleasant aesthetic result.



## HEAT SHIELDED

Vulnerable parts are heat shielded from high/low temperature.

