



Controllis

Perpetual Power

Basic48

Low cost high efficiency
48V DC generator for
Telecoms applications
5,7,10 & 12kW



Overview

The Basic48 is the Controllis low cost, high efficiency 10kW DC generator designed specifically for telecoms applications. The Basic48 brings the total capital cost of off-grid DC Power systems below the capital cost of an equivalent AC generator based system. The Basic48 uses the Controllis DCPrimePower technology and the Controllis RSC-HMU hybrid remote management and control system to enable operators to use a range of different charging regimes including float and hybrid battery.

Key Benefits

- Low capital cost – lower than equivalent AC generator and rectifier systems
- High efficiency all DC design - reduces fuel consumption compared to AC based systems
- Full remote monitoring and control – reduces maintenance and site visits
- Low fuel, fuel theft, low oil and generator fault reported to any Android device as standard
- Live streaming telemetry data reported to the RMS and any Android device as standard
- Fault notification via SMS, SMTP Mail, SNMP as standard
- Optional 400 litre and 1000 litre integral tanks
- Optional Controllis Smart LVD system

Comprehensive Remote Monitoring and Control

All Controllis DC generators utilise the Controllis Remote System Controller Hybrid Management Unit (RSC-HMU).

The RSC HMU monitors and manages a wide range of critical engine and fuel system parameters as well as generator site security. The RSC-HMU communicates directly to the Controllis Remote Management Server (RMS) which provides comprehensive configuration, alarm management and delivery. The RMS integrates into any telecom operator's NOC via SNMP or MOD/TCP-IP

The RSC-HMU interfaces back to the Controllis Remote Management Server via its internal 9BandUMTS/GPRS modem or via any other IP interface or RS485 interface available on site.

The RSC-HMU undertakes multiple management functions in the Basic48 generators including:

- Auto generator start management based on the 48V and 12V battery charge levels
- DC charging management
- Battery condition management
- Genset voltage control
- Time of Day load sharing sites with multiple generator
- Electronic generator throttle control based on demand from the load
- Lubrication system monitoring & reporting
- Cooling system monitoring & reporting
- Optional Filter condition monitoring & reporting
- Optional Fuel system monitoring & reporting
- Optional Oil Level monitoring and reporting
- Engine and environment temperature monitoring & reporting
- Recording engine hours and maintenance log
- Security monitoring & reporting
- Unauthorised system movement detection
- Geographic location reporting
- Optional video monitoring of genset site
- Optional remote communications and monitoring of solar PV and other renewable sources
- The flexible design of the RSC-HMU allows additional bespoke monitoring functionality to be easily added.

Battery Protection

All Controllis DC generators have been specifically developed to provide a safe and controlled solution for charging DC battery banks. The system monitors battery voltage, battery temperature and load current, and uses internal battery charging algorithms to provide the correct amount of voltage and current into the battery bank for the given conditions. Controllis developed algorithms control the engine speed 50 times per second to vary the voltage to the appropriate level.

In addition to the software control there are built-in hardware protection circuits that ensure the battery bank is never over-charged under any circumstances.

Fuel Saving

Controllis DC Generators have been designed to significantly reduce fuel consumption in site operation. These savings are accomplished by:

- The very high efficiency Controllis DC *PrimePower* permanent magnet alternator.
- Varying the engine speed according to site loads, therefore lowering fuel consumption by producing only the precise amount of power demanded at the deployment site.
- Mounting the DC *PrimePower* PMG directly on the engine fly wheel, negating the need for alternator coupling or bearings.

The fuel savings for a typical site load compared to a modern correctly sized AC Generator and rectifier are usually between 20% and 25%. For smaller site loads hybrid operation using a battery bank can reduce fuel usage by up to 70% compared to a traditional AC installation. On sites suitable for solar and/or wind power a Controllis hybrid solution can reduce annual fuel usage to a tiny fraction of previous levels.

Renewable Energy Integration

All Controllis DC generators integrate easily into renewable energy solutions. The Basic48 can be supplied with optional 48V solar PV charging controllers for up to 12 kW of solar capacity. The solar controllers are integrated with the Controllis RSC-HMU via MODBUS to provide full remote visibility of the entire system including solar output and battery status.

When power demand is not met by the solar output or the energy stored in the battery bank, the Basic48 generator automatically switches itself on and takes over the charging role until the renewable source can again provide sufficient energy to meet site needs. The Basic48 generators can be integrated with other renewable systems including wind power and micro hydro-power.

Durable Cost Effective Construction

The Controllis Basic48 is either shipped fully assembled and tested from our UK factory or shipped as a flat-pack kit for assembly in-country (reducing import-duties and shipping costs). The Basic48 enclosure is constructed using durable powder coated zinc plated steel

The Basic48 standard sound level at 7m is 65dB, if ultra low noise level is required the Controllis Quiet48 range of DC generators have a sound level of 50 dBm at 7m.

Warranty, Support and Finance

All Controllis DC generators systems are sold with a comprehensive multi-year warranty on parts and labour. At the end of the warranty period there is an option to purchase an extended warranty. Controllis provide comprehensive support and training during the installation and commissioning phase of new deployments. After installation we provide 3rd tier support to your system managers on an as required basis. For large deployments we can arrange financing to qualifying companies.

Basic48 Specifications

Power Output	5, 7, 10 and 12kW DC 48-57V
Voltage Ripple	<10 milli volts RMS
Voltage Control	Tracking to better than 100mV
Engine	Perkins 3 Cylinder Diesel
Fuel	Diesel, Indirect Injection
Built in Hybrid Remote Power Controller	Auto Engine Start
	Electronic Throttle Control
	48V Intelligent Charging System
	12V Intelligent Charging System
	Battery Temperature Monitoring
	Fuel Level (sensor optional)
	Oil Level (sensor optional)
	Optional Oil, Fuel and Air Filter Condition
	Coolant Temperature
	Oil Temperature
Environmental Temperature	
Communications	Ethernet & RS485 with built-in UMTS/GSM (see Remote System Controller datasheet for full details)
Optional Internal Fuel Tank	60 litre, 400 litre or 1,000 litre
Optional External Fuel Tanks	Secure tanks up to 2,500 litres
Corrosion Protection	All external components are powder coated zinc plated steel
Paint	Oven Baked Polyester Powder Coated
Colour	Standard RAL7035 light grey (Other colours optional)
Noise Level	65dBA at 7m standard enclosure
Environmental Operating Temperature	-40C to +55C
Dimensions with WxHxD	1595 x 1280 x 795
Weight (without fuel)	350 kG