Overview

The IP MVS 600 prime power commercial generator set (genset) is a fully integrated power generation system. It provides optimum performance and reduced operating costs through Innovus Power’s Variable Speed Technology. By decoupling engine speed from electrical frequency, our system can run the engine at the most advantageous operating speed for any given load.

Proven MTU Engine

The IP MVS 600 uses the MTU 12V-1600 C70 diesel engine, which meets U.S. EPA Tier 4 final emissions requirements. This engine deploys high-pressure common rail injection, 2-stage turbo-charging and cooled exhaust gas recirculation, without the use of after-treatment.

Permanent Magnet Generator (PMG)

The high-efficiency PMG is designed specifically for Innovus Power’s Variable Speed Technology.

Power Converter

Innovus Power’s variable speed operation is accomplished through proven power converter technology commonly deployed in the renewable energy industry. The power converter used in the IP MVS 600 is designed for high reliability, high power density, and easy maintenance through modularity. It provides a variety of grid support features such as automatic grid synchronization, paralleling, and volt ampere reactive (VAR) support without additional equipment.

Key Features

Fuel Savings

Conventional fixed-speed gensets waste fuel when running below rated load. By setting the engine to the optimum speed for a given load, Innovus Power’s Variable Speed Technology achieves up to 35% fuel savings.

Reduced Emissions

By reducing fuel consumption and optimally loading the engine, Innovus Power’s Variable Speed Technology reduces emissions up to 40% when compared to conventional fixed-speed gensets.

Extended Operating Life

Since the engine normally operates at lower speed when compared to a fixed-speed genset, engine wear and tear is greatly reduced. Running the engine at optimum speed reduces service issues due to “wet stacking” and “coking”, which result from incomplete combustion at low load, high RPMs. Engine speed optimization extends periods between overhauls and reduces maintenance costs.

Variable Speed Cooling System

By running the cooling fan at the optimum speed for the ambient conditions and load, Innovus Power’s Variable Speed Technology minimizes parasitic loss thereby maximizing system efficiency.

PowerView™

PowerView is Innovus Power’s proprietary Supervisory Control and Data Acquisition (SCADA) and visualization system. It provides a user interface with extensive data logging and complete system diagnostics. PowerView provides secure remote monitoring and fleet management from internet connected devices.

Variable Speed Fuel Savings

![Variable Speed Fuel Savings Chart]

Specific Fuel Consumption

![Specific Fuel Consumption Chart]

Rating Definition and Standards

**Prime Power:** Applicable for supplying power to varying electrical load for unlimited hours. Prime Power is in accordance with ISO 8528.

**Applicable Standards:** EPA, UL 2200, UL 2201, NEC/NFPA, UL 1741, ISO 8528, IEC 60034, CSA
## Generator Set Specifications

### System
- **Prime Power Rating**: 590 kW / 737 kVA at 50 or 60 Hz
- **Overload Rating**: 10% for limited time
- **Reactive Power Support**: Any power factor, total kVA < 737
- **Nominal Rated Output Voltage**: 480V standard, any other voltage selectable
- **Nominal Rated Output Frequency**: 50/60 Hz selectable without derating
- **Generator set Performance Class**: ISO 8528-5 G2/G3 optional
- **Total Harmonic Distortion (THD)**: <3%
- **Allowable Load Imbalance, Ø to Ø**: ±33% of rated power

### Engine
- **Manufacturer**: MTU
- **Model**: 12V-1600 C70
- **Design**: 4 cycle, DHC, turbo-charged and after-cooled
- **Displacement**: 21 L (1281 cu. in.)
- **Cylinder Configuration**: 12-Cylinder, 90° V
- **Bore/Stroke**: 122 mm/150 mm (4.8 in./5.9 in.)
- **Fuel System**: Direct injection
- **Starting Voltage**: 24V, negative ground
- **EPA Emissions**: Tier 4 Final

### Generator
- **Generator Type**: Interior Permanent Magnet (IPM)
- **Number of Poles**: 8
- **Insulation Rating**: Class H
- **Temperature Rise**: Class B
- **Generator Cooling**: Liquid-cooled
- **Coupling Type**: Torsional soft rubber coupling
- **Bearings**: 2-bearing, L10 180,000 hrs.

### Converter
- **Rectifier**: Active rectifier
- **Switching Device**: IGBT
- **Cooling**: Liquid
- **Circuit Breaker**: Included
- **Output Terminal Provisions**: Bus bar tabs w/M12 studs

### Environmental
- **Temperature Range, Operating**: -15°C to 50°C
- **With Cold Weather package**: -40°C to 50°C
- **Temperature Range, Storage**: -40°C to 55°C
- **Full Power Operation Temperature Limit, Without De-rate**: 35°C
- **Temperature De-rating**: 4% per 10°C
- **Full Power Operation Elevation Limit, Without De-rate**: 1,200 m
- **Elevation De-rating**: 1% per 100m
- **Humidity**: 0-90% non-condensing

### Physical Characteristics
- **Power Pack (engine and generator), L x W x H**: 3048 x 1270 x 1524 mm (120 x 50 x 60 in)
- **Weight, Dry**: 5602 kg (12350 lb.)
- **Converter**:
  - **Dimensions, L x W x H**: 2082 x 930 x 2150 mm (82 x 37 x 85 in)
  - **Weight, Dry**: 2200 kg (4850 lb.)
- **Cooling System (Remote Radiator Skid)**: 2463 x 2057 x 2438 (97 x 81 x 96 in)
  - **Weight, Dry**: 3084 kg (6800 lb.)

### System Options
- **PowerView™ User Interface Display**: 15-inch touch panel with PowerView™ displays comprehensive real-time data, active and historic alarms, trends and events
- **Data Acquisition**: PowerView™ stores over 200 parameters in a exportable database
- **Remote Software Updates**: With customer-provided Internet connection
- **Alarms**: Over 2000 diagnostic alarms including complete engine and power system.

### Engine Speed Control
- **Variable speed for optimum efficiency**

### Cooling System
- **Variable speed for optimum efficiency**

### Grid Synchronization
- **Automatic, built-in**

### Communication Interface
- **Modbus TCP, Modbus RTU**

### I/O Interface
- **Digital Inputs**: Start/stop, fault reset, load-on warning
- **Digital Outputs**: Warning alarm, fault alarm
- **Analog Outputs**: Two, configurable

### Panel Interface
- **Annunciators**: Control power on, system on, ready, warning, fault lights, starting beeper
- **Buttons**: Pre-heat, start, stop, reset faults, emergency stop

### User Interface Display
- **Start/stop, fault reset, load-on warning**
- **Warning alarm, fault alarm**
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### Panel Interface
- **Control power on, system on, ready, warning, fault lights, starting beeper**
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### Annunciators
- **15-inch touch panel with PowerView™ displays comprehensive real-time data, active and historic alarms, trends and events**
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