



**SAVE
FUEL**

CNG Retrofit – Saves Money

Smint TIQ



Diesel Engine

- Low CAPEX
- Only Diesel
- Fast Response
- Higher Emissions
- High Power



Dual Fuel Engine

- Quick Payback
- Fuel Flexibility
- Diesel like response
- Reduced Emission
- Small Foot Print



Gas Engine

- High CAPEX
- Only Gas
- Inflexible loading
- Large Footprint
- Higher O&M Cost

Dual Fuel Optimizer – fully automatic – remote monitoring

Diesel generator sets are used in industry as a source of backup in case of power cuts. As the name suggests, these gensets use diesel as fuel. On burning, diesel emits oxides of nitrogen, carbon monoxide and particulate matter, which are major contributors to air pollution.

Advantages of Dual Fuel - based gensets:

- ✓ Operating cost is 45-50 per cent lower than the diesel-powered generators.
- ✓ Natural gas is generally cheaper than liquid fuels like light diesel oil (LDO) and diesel.
- ✓ Zero emission of harmful particulate matter and smoke; 35-40 per cent less emission of pollutants such as NOx and CO2.
- ✓ No scaling or clog or sooting takes place in use of natural gas and hence maintenance cost is less than that of other fuels.
- ✓ Piped natural gas (PNG) does not require any storage tank or storage space since it is supplied through pipelines.
- ✓ Noise level generated is 4 db lower than noise generated by a conventional genset.
- ✓ Natural gas does not produce a pungent odour, which is fairly common in generators powered by diesel.

Gas Train

- Gas filter, Pressure regulator, Gas Pressure Gauge, Zero Pressure regulator, Gas shutoff valve and Gas flow adjusting valve, servo injector valve, upstream- downstream pressure sensor,. Temperature and exhaust oxygen sensor,
- Gas piping from gas train to Gas mixer and Gas mixer unit (depends on number of Turbocharger in engine – same qty as Turbo

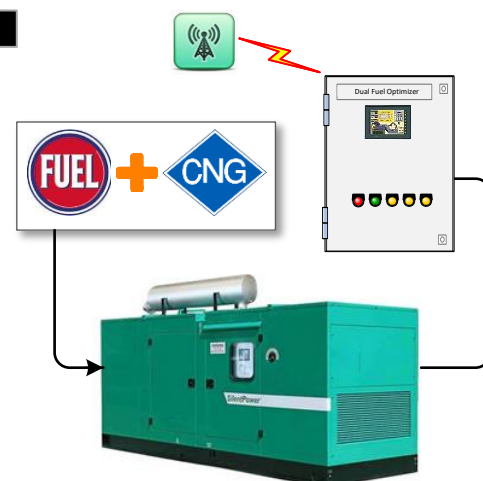
CNG Gas Parameters

- Gas Supply Open/Close control
- Gas Volume of flow, flow rate, cumulative flow volume, minimum – maximum flow measurement
- Filter MAP sensor value
- Upstream Pressure value
- Gas Flow & Pressure Regulator
- Down stream pressure value
- Flow Rate & Flow Volume – control valve
- CNG Servo Injector control
- Injector output pressure value
- Gas & Air mixture temperature
- Gas & Air mixture Servo injector control
- After injector pressure
- After injector temperature

Diesel Parameters

- Diesel Supply Open/Close control
- Diesel Volume of flow, flow rate, cumulative flow volume, minimum – maximum flow measurement
- Low pressure pump control
- High Pressure pump control
- Exhaust Oxygen Monitoring
- Exhaust Temperature
- Alternator output KWhr, KW, Power factor, Voltage, current, frequency, Harmonics distortion

The bill of materials, sizes and rating differs according to the capacity of the Genset KVA. Adding additional parameters – like lubrication oil sensor (Viscosity, density & temperature), engine temperature, vibration of the engine, alternator temperature – improves the overall performance and leads to longer life cycle and lesser maintenance and REDUCED DUAL FUEL cost.



Performance Parameters

- CNG Gas & Diesel Mixing Ratio
- Automatic changeover to Diesel in case of gas low pressure

Automatic Report Generation

- For one unit (KWhr) of energy generation volume of CNG Gas consumption
- For one unit (KWhr) of energy generation volume of Diesel consumption
- Total cost of one unit of power generation
- Mixing ratio vs one unit of power generation
- Mixing ratio vs Percentage of GENSET load
- Events, history, trend & performance reporting.