



# DET 60S

Dheya Engineering  
Technologies  
Private Limited

Micro Turbogenerator · 60 kW Distributed Power Generation

## Product Overview

The DET 60S is a fuel-flexible, high-efficiency micro turbogenerator engineered for reliable distributed power generation. Based on a compact single-spool architecture with a centrifugal compressor and radial turbine, it delivers 60 kW of 3-phase electrical output with an exhaust gas temperature below 200 °C — enabling waste heat recovery integration. Designed for hydrogen and flex-fuel compatibility, the DET 60S is positioned as a clean-energy prime mover for hybrid propulsion, remote power stations, and industrial backup.

## Key Highlights

<b>60 kW</b> Output Power	<b>60,000 RPM</b> Maximum Speed	<b>&lt; 200 °C</b> Exhaust Temp.	<b>4.2</b> Pressure Ratio	<b>H<sub>2</sub> Flex Fuel</b> Fuel Type	<b>&lt; 0.3 kg/kW-h</b> TSFC
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## Technical Specifications

Parameter	Value	Unit
<b>ARCHITECTURE</b>		
Engine Type	Single Spool Micro Turbo Generator	—
Compressor Configuration	Centrifugal Compressor	—
Turbine Configuration	Radial Turbine	—
Pressure Ratio	4.2	—
<b>PERFORMANCE</b>		
Maximum Speed	60,000	RPM
Output Power	60	kW, 3-Phase
Thrust-Specific Fuel Consumption	< 0.3	kg/kW-h
Exhaust Gas Temperature (EGT)	< 200	°C
<b>FUEL SYSTEM</b>		
Fuel Type	Hydrogen / Flex Fuel	—
Fuel Flexibility	H <sub>2</sub> , CNG, Diesel, Jet A1	—
<b>ELECTRICAL</b>		
Output Configuration	3-Phase AC	—
Power Electronics	Integrated Inverter / Rectifier	—

■ **Development Status:** The DET 60S is currently under active development. Specifications are indicative and subject to revision as the programme matures. Early-access partnerships and co-development enquiries are welcome.



DET 60S — Turbogenerator Unit (3D Render)

## System Architecture

- **Single Spool:** Integrated shaft connecting compressor, turbine, and generator — minimal mechanical complexity
- **Centrifugal Compressor:** High pressure ratio in compact frontal area with wide surge margin
- **Radial Turbine:** Efficient energy extraction with EGT below 200 °C — enables safe exhaust handling and heat recovery
- **Direct-Drive PMG:** Permanent magnet generator on common shaft — no gearbox required
- **Integrated Power Electronics:** On-board inverter / rectifier for grid-compatible 3-phase AC output
- **CANBUS Diagnostics:** Real-time monitoring of speed, temperatures, fuel flow, and power output

## Key Features

- 1. Hydrogen & Flex-Fuel Ready**  
Native compatibility with hydrogen, CNG, Diesel, and Jet A1 — future-proofing the platform for evolving clean-energy mandates without hardware modification.
- 2. Ultra-Low EGT**  
Exhaust gas temperature below 200 °C significantly reduces thermal management complexity and enables safe waste-heat recovery for combined heat and power (CHP) configurations.
- 3. Compact Single-Spool Design**  
Gearbox-free direct-drive architecture minimises part count, reduces maintenance intervals, and improves overall system reliability and power density.
- 4. High Electrical Efficiency**  
Integrated permanent magnet generator and on-board power electronics deliver high-quality 3-phase AC output with low harmonic distortion — suitable for grid-parallel and island-mode operation.
- 5. CANBUS Diagnostics**  
Real-time monitoring of speed, fuel flow, temperatures, pressures, and power output via CANBUS — enabling remote operation, health monitoring, and predictive maintenance.
- 6. Modular & Scalable**  
The DET 60S is designed for modular parallelisation — multiple units can be combined for higher power demands, providing N+1 redundancy and load-following flexibility.

## Target Applications

- Hybrid-electric propulsion for heavy autonomous aerial vehicles
- Remote and off-grid distributed power generation
- Backup and emergency power for critical infrastructure
- Combined heat and power (CHP) systems
- Range-extender for ground-based electric vehicles
- Maritime auxiliary power units
- Hydrogen economy demonstration platforms
- Industrial IoT and micro-grid power nodes

## Package Contents

- ✓ Turbogenerator Unit (assembled)
- ✓ Integrated Fuel Management Module
- ✓ Power Electronics Unit (Inverter / Rectifier)
- ✓ CANBUS Interface Module
- ✓ Mounting Frame with Vibration Isolators
- ✓ Wiring Harness and Connectors
- ✓ Commissioning and Operations Manual

**Early-Access & Co-Development:** The DET 60S is currently under active development. Dheya Engineering invites academic institutions, system integrators, and energy companies to engage in early-access partnerships. Custom power ratings, fuel configurations, and enclosure specifications can be developed collaboratively. Contact us at **+91-96321 28866** to discuss programme participation.