NEW PRODUCT GENERATION · 33% LESS VOLUME · 25% LESS WEIGHT

NEW ENERDAY

Remote 400 – Fuel Cell Power Generator

PRODUCT

Remote 400 provides off-grid power to stationary or semi-mobile applications. An integrated IP interface for telemonitoring and long maintenance intervals enable unattended operation for more than a year. This makes Remote 400 ideal for use in secluded areas. Reliably, the compact unit operates at a temperature range from -20 to +55 °C / -4 to 131 °F (-40 °C / -40 °F optionally).

APPLICATIONS

+ OIL & GAS: SCADA and communication systems, cathodic corrosion protection, remote-controlled gate valves at pipelines, etc.
+ SECURITY & SAFETY: Video surveillance systems, access control, traffic control, etc.
+ TELECOMMUNICATIONS: microwave radio repeater stations, private LTE / 5G tower, back-up power in extreme weather areas, etc.
+ FURTHER APPLICATIONS: Environmental monitoring, meteorology technology, drones, etc.

SELECTED PROJECTS

+ Germany, Deutsche Bahn AG: In various locations, Remote 400 powers traffic lights and barriers at level crossings during wintertime.
+ USA, leading telecom network operator: Combined with photovoltaic systems, Remote 400 ensures the operation of several microwave radio stations in Alaska.
+ Tibet, Furtenbach Adventures GmbH: For an whole season, Remote 400 provided energy at the base camp on Mount Everest. For this purpose, two units were adapted to the high altitude.

CORE ADVANTAGES

+ AUTONOMOUS
Low maintenance enables unattended operation > 1 year

+ DURABLE
3x longer product life cycle than comparable off-grid fuel cell generators

+ ROBUST
Reliable primary power supply even under harsh conditions

+ EASY
Simple installation and operation

+ CLEAN
Environmentally friendly thanks to low emissions and low noise

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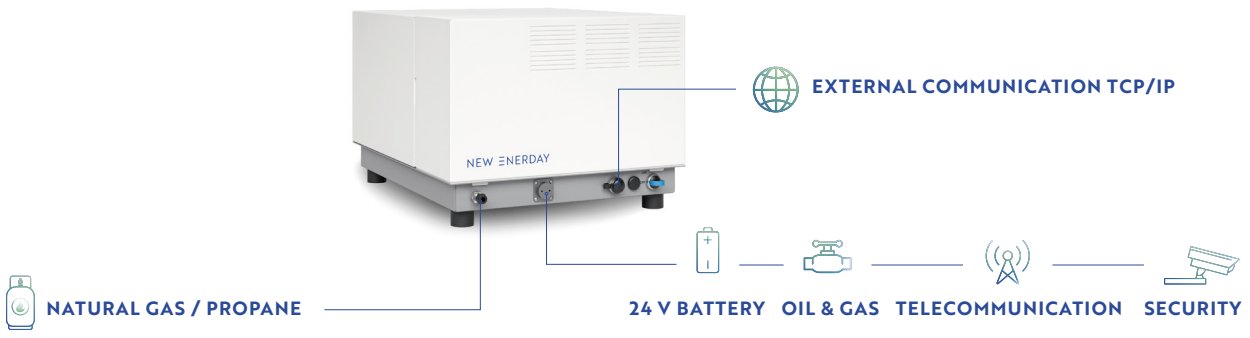

	Remote 400 LPG/NG – Technical Data
Fuel	Propane (LPG) / Natural Gas (NG)
Electrical power	60 ... 350 W +- 10%
Max. daily electrical output	8,4 kWh/day
Rated voltage Battery voltage	21 V = undervoltage limit ... 27.5 V shutdown / up to 30 V on request
Fuel consumption	Propane: 75 ... 106 g/h / (0.17 ... 0.23 lbs/h) Natural gas: 0.094 ... 0.136 Nm³/ h / (3.32 ... 4.80 standard ft3/h)
number of cold start cycles	50 cycles guaranteed / typical >100 cycles
operational altitude	Standard up to 1.500 meter / 5,000 ft, maximum 3.000 meter / 10,000 ft with 15% power reduction
unsupervised operation	up to 10,000 opHrs
lifetime core system typical	>15,000 opHrs (continuous operation, low on-off cycles)
Gas connection	8 mm / 0.039 inches compression fitting
Pressure of gas connection	20 ... 50 mbar / 0.29 ... 0.73 psi
Weight	50 kg / 110 lbs
Dimensions	565 x 465 x 365 mm / 22.2 x 18.3 x 14.4 inches
Ambient temperature for operation	-20 ... +55 °C / -4 ... +131 °F (-40 °C / -40 °F optionally)
Noise emission (without enclosure)	< 49 dB (A) at power mode and < 55 dB (A) during heat-up, in 7 m / 23 ft distance
Thermal output	None
Water / lubricant consumption	None
IP protection category	IP50
Communication	Ethernet TCP / IP (Web based GUI / REST-API)
Essential accesories for operation	Battery VRLA 24 V, > 300 Ah, low pressure regulator, gas line and gas hose
Other products / applications	POWERBOX 10,000 hybrid systems with photovoltaic, battery bank and 10 kVA peak power at 230/400 V AC PowerCabinet 600 (skid wired and ready): outdoor cabinet to supply already existing systems with 600 W / 24V DC peak power – e.g.: SCADA
Qualifications	CE certification for Europe; NRTL certification for North America; ISO 9001:2015 production facilities and quality management system

LINDENSTRASSE 45 · 17033 NEUBRANDENBURG · GERMANY
+49 395 351733-0 · INFO@NEW-ENERDAY.COM

ENERGY FOR THE FUTURE
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REMOTE 250 and REMOTE 500
Propane Fuel Cell Power Generators

- Worldwide proven since 2013
- High efficiency, low emissions
- Standard Propane and BioLPG
- < 20 % fuel cost versus Methanol
- Up to 10,000 h autonomy
- free of water and lubricants
- Maintenance free up to 2 years
- Suitable for hybrid with photovoltaics

The development of NEW ENERDAY high-temperature fuel cells dates back to the early 2000s, with the official product launch of the REMOTE series taking place in 2013. This was the first time that ceramic based solid oxide fuel cells (SOFC) fuelled by Propane or natural gas were commercially available for off-grid power supply in Europe. Since then, hundreds of REMOTE fuel cell power generators have been manufactured and delivered to customers worldwide for their professional applications.

The new REMOTE 250 and REMOTE 500 fuel cell generators cover the load range between 50 and 450 W of average power. Peaks loads beyond that can by covered by the battery. Higher power requirements up to 2 kW or redundancy for maximum reliability can be met by parallelising the Propane fuel cell generators.

The new product generation is characterized by optimized efficiency, reduced fuel consumption, lower weight, longer autonomy and faster start-up.

By using commercially and commonly available Propane and achieving unmatched efficiency in this product segment, low total costs (TCO) can be achieved. By combining with photovoltaics for the summer months, fuel cell operation is reduced to 2,000-4,000 operating hours or less in the winter season. This is the most cost-effective solution in many cases. NEW ENERDAY REMOTE fuel cells start automatically when needed, can be controlled remotely, and can adapt their output to the energy demand of the customer's load.

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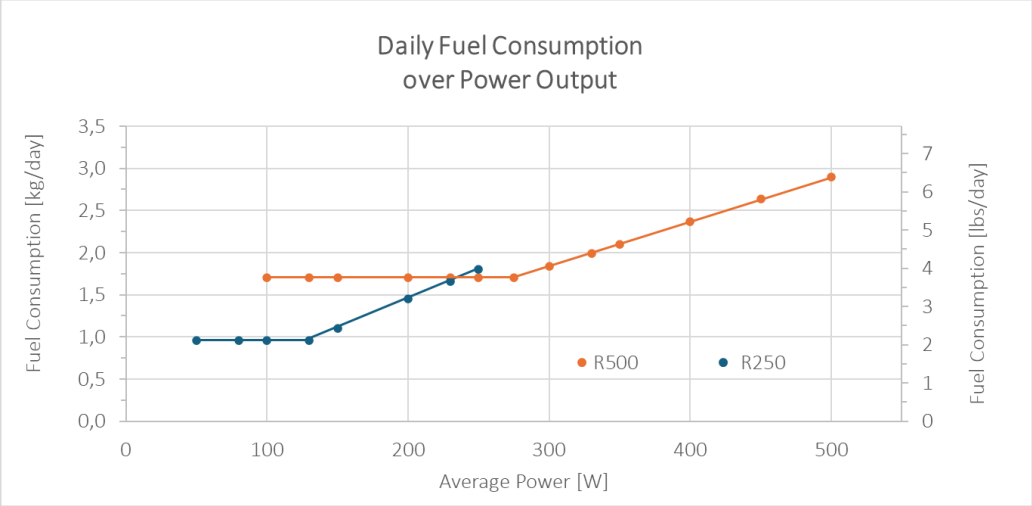
REMOTE 250 & 500 Propane Fuel Cell Generators

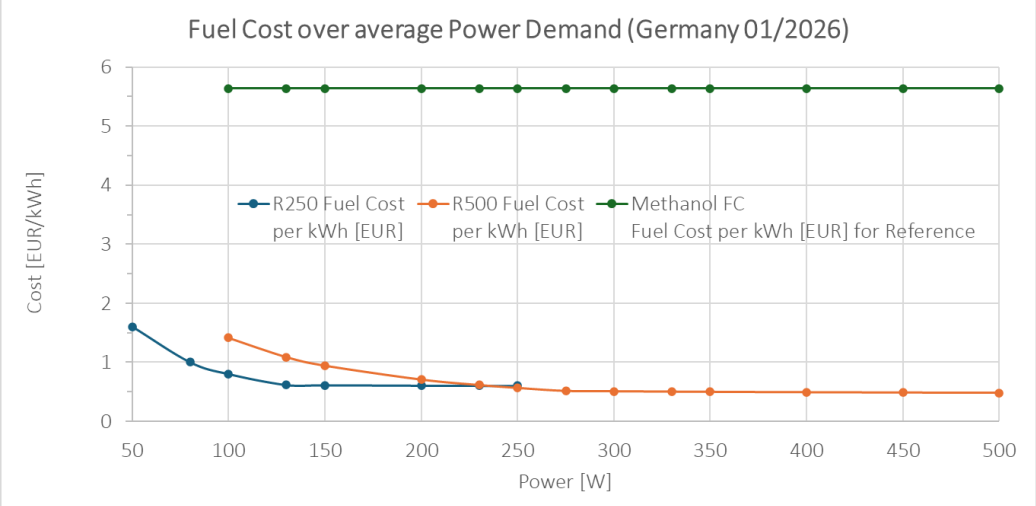
Technical Data	REMOTE 250	REMOTE 500
Nominal Power [1)]	250 W	500 W
Power Range [1)]	60…250 W	100…500 W
Recommended Load Range	60…220 W	100…450 W
Max. Daily Output [1)]	6 kWh/day	12 kWh/day
Voltage / Battery Technologies	24 V, VRLA (AGM/Gel Deep cycle), LFP 25.6 V on request	
Heat-up time to generation @ 20 °C	<3 hours	3 hours
Fuel	Propane / BioLPG (DIN 51622/HD-5) Natural gas / CNG / LNG for REMOTE 500 optional	
Fuel connection	8 mm / 0.039 inches compression fitting	
Fuel pressure	20 ... 50 mbar / 0.29 ... 0.73 psi	
Daily Fuel Consumption	1.0…1.8 kg / 2.2…4 lbs	1.7…2.9 kg / 3.6…6.4 lbs
Noise Emissions in 7 m/21 ft distance	< 49 dB(A) during generation < 55 dB(A) at heat-up	
Weight	39 kg / 86 lbs	45 kg / 99 lbs
Dimensions (LxWxH)	500 x 466 x 358 mm 19.7 x 18.3 x 14.1 inches	
Ambient Conditions	-20…+55 °C / -4…131 °F, IP50 lower temperatures possible with proper integration	
Elevation	Standard: up to 1.500 meter / 5,000 ft, Extended: max. 3.000 meters / 10,000 ft with 15% power reduction	
Regular Maintenance (Autonomy is fuel tank depending)	every 2 years or after 7,500 opHrs	every 2 years or after 5,000 opHrs optional 10,000 opHrs
Typical Stack Life (continuous winter operation plus PV; refurbishment afterwards)	15,000 operating hours at low on/off cycles – refer to manual = 4...6 years in photovoltaic hybrid systems with 3...4,000 opHrs per year	
Essential accessories for operation	Battery VRLA (LFP on request), fuel pressure regulator, high temperature exhaust hose	
Electrical and data connections	Battery (+/-), Web GUI and API via TCP/IP Ethernet	
Recommended minimum battery size	VRLA / AGM: 200 Ah LFP: 130 Ah	VRLA / AGM: 300 Ah LFP: 180 Ah
Qualifications	CE certification for Europe; NRTL certification for US and Canada ongoing ISO 9001:2015 production facilities and quality management system	

[1)] The output power and energy may vary by +/- 10% and decreases with the operating hours, depending on the installation situation and the operating conditions

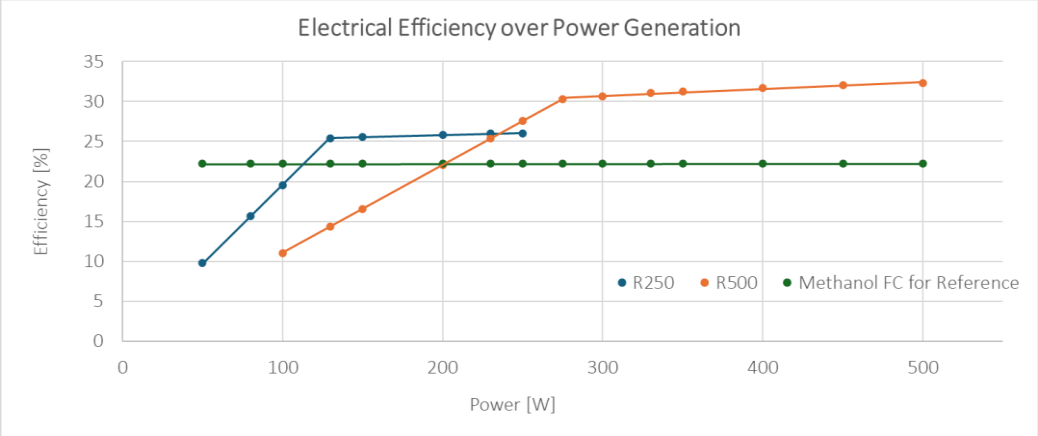
Fuel Consumption



Fuel Cost



Efficiency



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Selected References

Telecommunication: AT&T Alaska & Government Radio Kanada

Surveillance und Security: German Railway DB, Drone Ports in Canada, Aviation Obstruction Lights

Oil & Gas: Petronas Malaysia, Gas Utilities in Taiwan und Eastern Europe

Meteorological Sensors / Lidar: Hokkaido-Japan and Northern Canada

Please contact us, we will be happy to advise and assist you regarding integration design.

NEW ENERDAY GmbH, Lindenstr. 45, 17033 Neubrandenburg, Deutschland
www.new-enerday.com
info@new-enerday.com