

# Technical data sheet UPS Unit



**HITEC**  
**Power Protection**

Document name	2104116C-revD
System Type	Energy Efficient Plus
UPS Unit voltage	Low voltage

System Ratings	
UPS power rating (no break load)	2250 kVA
Rated output active power (no break load)	1800 kW
System efficiency (input / output) @ rated output active power, pf = 1	96,5 %
Rated voltage	400 Vac
Rated frequency	50 Hz
Recharge time of flywheel (based on full load)	approx. 15 minutes

Input (Utility)	
Power factor at rated operation	approx. 1
Current THD (linear load / linear utility)	0 %
Utility voltage acceptance	±10 %
Utility frequency acceptance	0,4 Hz

Output (Load)	
Rated output voltage	400 Vac
Steady state accuracy	≤ 2 %
Under high impedance mains disturbance	≤ 15 %
Under low impedance mains disturbance	ITI / Cebema
Nominal current no-break	3248 A
Nominal current short-break	0 A
Short circuit capability, subtransient	15 x Inom
Output power factor (inductive)	0,80
Output power factor (capacitive)	0,91
Output frequency variation	50 Hz
Steady state variation	≤ 1 %
Dynamic variation (max.)	≤ 2 %
Voltage THD (linear load)	≤ 2,5 %
Reduction of harmonics from utility to output (or reverse)	≤ 80 %
Output phases	3-ph + N

Energy Transfer Module	
Brand	Hitec Power Protection
Type	WE-ABA
Generator side speed	1500 rpm
Flywheel side operating speed range	1500-2900 rpm

Diesel Engine	
Brand <sup>1)</sup>	Perkins
Type <sup>1)</sup>	4016-61TRG3
Output	2022 kWm
Speed	1500 rpm
Bore	160 mm
Stroke	190 mm
Number of cylinders	16
Piston displacement	61,123 dm <sup>3</sup>
Compression ratio	13,0:1
Injection	direct
Governor	Heinzmann
Fuel consumption (100% load)	519 l/hr
Fuel consumption (75% load)	371 l/hr
Fuel consumption (50% load)	249 l/hr
Fuel consumption (25% load)	134 l/hr
Fuel consumption (0% load)	not available l/hr
Combustion air	11.403 m <sup>3</sup> /hr
Exhaust flow	28.152 m <sup>3</sup> /hr
Exhaust temperature	467 °C
Exhaust back pressure (maximum)	39,1 mbar
Lub oil content	213 dm <sup>3</sup>
Lub oil consumption	2,60 l/hr
Water content engine	95 dm <sup>3</sup>
Water outlet temperature (maximum)	98 °C
Water inlet temperature intercooler	60 °C
Pump capacity	75,6 @ 30 kPa m <sup>3</sup> /hr
Pump capacity intercooler	43,2 @ 60 kPa m <sup>3</sup> /hr

Noise Level	
Normal operation (overall sound <b>power</b> level, approx.)	TBD dB(A)
Diesel operation (overall sound <b>power</b> level @ full load, approx.)	TBD dB(A)

TDS made by: EvW / PSK

printed/saved:

Hitec Power Protection

Headquarters:

P.O. Box 65

NL - 7600 AB Almelo

Tel: +31 546 - 589 589

Fax: +31 546 - 589 489

E-mail: [info@hitec-ups.com](mailto:info@hitec-ups.com)

Url: [www.hitec-ups.com](http://www.hitec-ups.com)

Generator	
Brand <sup>1)</sup>	Marelli
Type <sup>1)</sup>	MJB 560 D/W
Speed	1500 rpm
Generator Voltage	400 Vac
AVR	M40FA640A/A
Reactances x <sub>d</sub> " / x <sub>q</sub> "	0,14 / 0,15 p.u.
Time constant T <sub>d</sub> "	0,03 s
Insulation class	H
Temperature rise	≤H

Flywheel	
Brand	Hitec Power Protection
Type	400
Operating speed range	1500-2900 rpm
Lub oil content	30 dm <sup>3</sup>
Lub oil consumption	2 ml/day

Ambient Conditions	
Maximum relative humidity (non-condensing)	85 %
Minimum ambient temperature (operation) <sup>2)</sup>	5 °C
Maximum ambient temperature (operation) <sup>2)</sup>	40 °C
Installation altitude (max. above sea level) <sup>2)</sup>	400 m

Heat Rejection		PF=1	PF=0.8
<i>- at normal operation</i>			
Unit Reactor Panel (URP)	Approx.	12,1	13,1 kW
Unit Transformer Panel (UTP)	Approx.	0	0 kW
Generator + ETM + Flywheel	Approx.	81	117 kW
<b>Total at normal operation</b>		<b>93</b>	<b>130 kW</b>
<i>- at diesel operation</i>			
Unit Reactor Panel (URP)	Approx.	2,7	4,0 kW
Unit Transformer Panel (UTP)	Approx.	0	0 kW
Generator + ETM + Flywheel	Approx.	84	102 kW
Diesel engine	Approx.	216	216 kW
<b>Total at diesel operation</b>		<b>303</b>	<b>322 kW</b>
Through cooling system			
Primary	max.	610	kW
Secondary	max.	686	kW
Through fuel	max.	14	kW
Electrical radiator power	max.	50	kW

General Data			
Type of bypass	Automatic		
Transfer	No Break		
Utility matching synchronizer	Yes		
Cable entry panels	Top + bottom		
Degree of protection (panels / power module)	IP20		
Color			
Generator	RAL	7016	
Energy Transfer Module	RAL	7016	
Flywheel	RAL	7016	
Diesel engine	Manufacturer standard		
Base frame / panels	RAL	7035	

Compatibility standards & regulations	
Low-voltage switchgear and controlgear assemblies	IEC 61439-1
Low voltage directive	2006/95/EC
Machine directive	2006/42/EC
Rotary uninterruptible power systems	IEC 88528-11
EMC directive	2004/108/EC
	EN 62040-2
	EN 61000-4
Acoustics -- Determination of sound power levels of noise sources using sound intensity	ISO 9614-2:1996
-- Part 2: Measurement by scanning	
Ambient conditions	IEC 60721-3-3 class 3K3

<sup>1)</sup> or equivalent / <sup>2)</sup> other values with possible derating

<sup>3)</sup> Cooling system design values / N.A. = Not Applicable