600 V

RUG

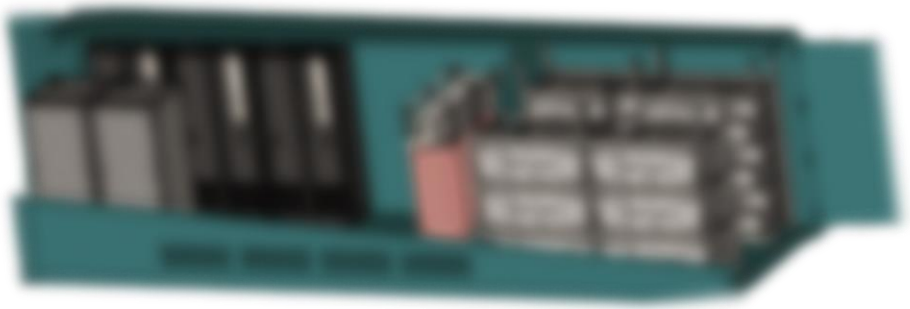
powered by LTW

HIGH VOLTAGE SOLUTION

η

IF YOU'VE EVER THOUGHT ABOUT RTBR, YOU CAN CONTINUE ON

- Any type of power plants
- Storage facilities for renewable energy
- EV charging stations
- 2h backup systems
- Microgrids / Island Grids
- Price arbitrage
- Peak balancing
- Voltage and frequency regulation
- Demand Side Response - DSR
- Microgrid mode option
- Blackout elimination
- Reduction of peak demand costs (distribution energy costs)
- Reactive power compensation (for asynchronous motors and transformers that need reactive inductive power) \ t



RUG

RUG 600 V η

HIGH VOLTAGE ENERGY
SOLUTION FOR THOSE WHO
WANT TO BE PREPARED

Inverter custom made
By **VONSCH**

= €

η Industry
LTW Battery

...AND THIS IS WHAT IT LOOKS LIKE

RUG

77,6 kWh η

155,2 kWh η

310,4 kWh η

455,6 kWh η

600 V

620,8 kWh η

1241,6 kWh η

		High-Energy container (8 ft.)		High-Energy container (10 ft.)		High-Energy container (12 ft.)		High-Energy container (16 ft.)		High-Energy container (20 ft.)		High-Energy container (40 ft.)	
Dimensions		1600x2408x800		3030x2438x2891		3636x2438x2891		6058x2438x2891		6058x2438x2891		12116x4876x5782	
Weight		980		1750		2980		4850		7950		15900	
Rated capacity	0,3C	19,5 kVA	77,6 kWh	39 kVA	155,2 kWh	75 kVA	310,4 kWh	120 kVA	455,6 kWh	150 kVA	620,8 kWh	300 kVA	1241,6 kWh
	0,5C	32,5 kVA	77,6 kWh	65 kVA	155,2 kWh	125 kVA	310,4 kWh	200 kVA	455,6 kWh	250 kVA	620,8 kWh	500 kVA	1241,6 kWh
	1C	65 kVA	77,6 kWh	130 kVA	155,2 kWh	250 kVA	310,4 kWh	400 kVA	455,6 kWh	500 kVA	620,8 kWh	1 MVA	1241,6 kWh
	2,43C***	155 kVA	188,56 kW	315 kVA	377,1 kW	600 kVA	744,2 kW	900 kVA	1121,3 kW	1225 kVA	1488,4 kW	2450 KVA	2576,4 kW
		24‘ / 25°C											
100% DOD - 4.2V…2.7V / connection		660 VDC											
Nominal voltage		486 – 756 VDC											
Starting voltage		12 / 3A / master & slave = 10x IESS = 12V/30Ah = 80x IESS = 240 Ah											
Maximum constant discharge current		230 A		460 A		920 A		1,38 kA		1,84 kA		3,68 kA	
Maximum constant charging current		100A long term and higher output up to 1.6C possible short term depending on BMS settings and inverter configuration											
Self discharge		-1% / p. a.											
Charging standard		IEC61851-23											
Working temperature		15 – 60°C											
Communication interface		Modbus TCP / CAN-BUS											
Master / slave		1x Master / 79x Slave, **external control voltage required (so-called starter battery)**											
Cooling system		Air cooling / air-conditioning required for outputs above 1C Parameters quoted are valid at 25°C											
Fire protection system		SACS – 1st. NMC extinguishing technology											
Inverter type		VONSCH GSE according to individual configuration											
Approximate price of the project:	0,3C	79 500,-		136 956,-		274 533,-		419 978,-		547 203,-		1 095 092,-	
1kWh / €		1 025,- / 1kW		883,- / 1kW		885,- / 1kW		921,- / 1kW		882,- / 1kW		882,- / 1kW	
Approximate price of the project:	0,5C	83 500,-		151 043,-		302 893,-		464 971,-		603 363,-		1 206 836,-	
1kWh / €		1 076,- / 1kW		973,- / 1kW		976,- / 1kW		1 021,- / 1kW		972,- / 1kW		972,- / 1kW	
Approximate price of the project:	1C	107 166,-		183 912,-		369 066,-		569 956,-		734 406,-		1 468 813,-	
1kWh / €		1 381,- / 1kW		1 185,- / 1kW		1 189,- / 1kW		1 251,- / 1kW		1 183,- / 1kW		1 183,- / 1kW	
Approximate price of the project:	2,43C	164 613,-		322 798,-		654 152,-		949 741,-		1 250 256,-		2 164 176,-	
1kWh / €		873,- / 1kW		856,- / 1 kW		879,- / 1kW		847,- / 1kW		840,- / 1kW		840,- / 1kW	

€

The above RUG Industry types are designed for long term charging and discharging in 2.43 C mode to meet 10,000 charge cycles. Stronger discharge currents should be used for other RUG configurations. The data shown here is used to show the differences between configurations.
The exact specifications and sizing will result from the project documentation The project documentation must be completed within 30 days.
*** Compatible Vonsch inverter sizing is required for this purpose. The 2.43C output is only usable if the inverter is sized for it. * Air conditioning is REQUIRED for outputs from 0.8C to 2.43C!

VONSCH®

GSE CONTROL

CENTRAL 400 / 125

- Increased stability
- High efficiency
- Quick start and load change reaction
- Environmentally friendly equipment – minimal standby consumption

		GSE CONTROL 400 / 125
AC output	Power Pnom	125 kVA
	Output current Inom	180 A
	Max. Output current Imax	270 A
DC input	Input voltage UBATnom	650 VDC
	Min. Input voltage UBATmin	620 VDC
	Max. Input voltage UBATmax	820 VDC
	Input current IINnom (on UBATnom)	205 A
Dimensions		1000x2100x500 mm
Weight		380 kg
Output voltage		3 x 400 V ±10%
Economically		≥ 96,8 %
Frequency		50 Hz
Communication interface		RS 485, USB, CAN
Communication modules		Modbus RTU, optional Profibus DP, Ethernet, GSM
Number of DC inputs		1
Time of disconnection from the mains in the event of a power failure		≤ 10 ms
Analog inputs		4x / 0 (4) – 20 mA / 0 (2) – 10 V
Analog outputs		3x / 0 (4) – 20 mA / 0 (2) – 10 V
Protection against)		Current overload, line overvoltage, line undervoltage, short-circuit protection (AC side), earthing protection, inverter overheating
Cooling		Forced air (fan)
Cover		IP 54
Standards		Safety EN 50 178 EMC immunity, emissions STN EN 61000-6-1,3 Harmonic distortion STN EN 61000 – 3 – 11 STN EN 61000 – 3 – 12
EEC instruction		2004/108/EEC, 2006/ 95/EEC

Made by BMZ

INDUSTRIAL IESS

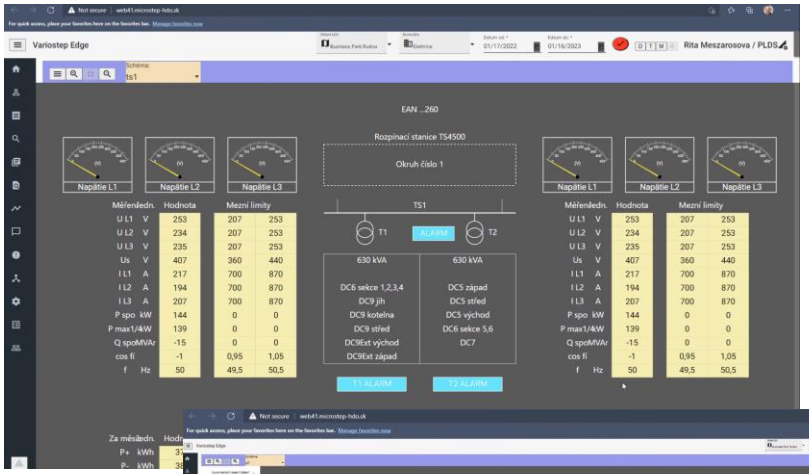
- This cell has a C rate of 4C max.
- The cell manufacturer is Samsung
- Guarantee when discharging 2.5 C / 6000x
- Not liquid cooled

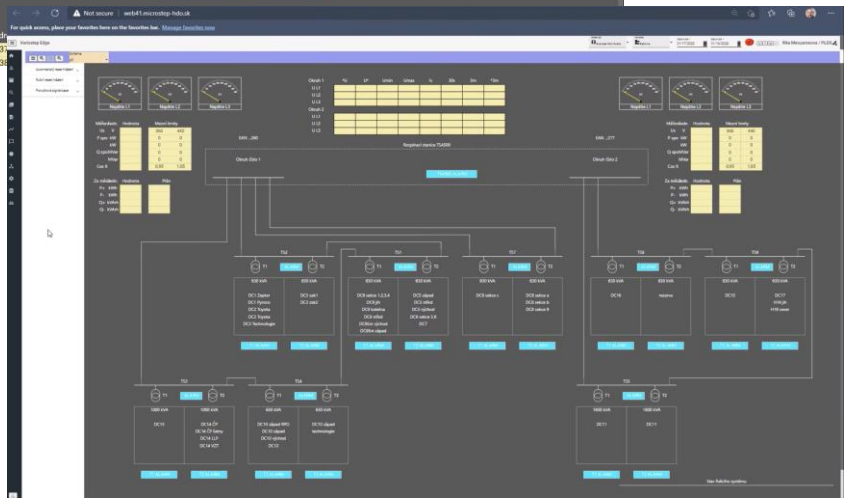
	LTW-INDUSTRIAL-IESS 77,6 kWh
Configuration and type of the battery cell	Li-ion 180S02P (15 moduls 12S02P)
Dimensions	800 mm x 850 mm x 2100 mm
Weight	645 kg
Nominal capacity at 25 ° C, min (min) (100% DOD - 4.2 V... 2.7 V / connection)	102 Ah
Rated output power	77,6 kW
Nominal voltage	669 VDC
Output voltage range	606 VDC ... 778 VDC
External voltage	12V / 3Ah / unit
Max. disch. curr. a battery at 25 ° C.	350A 60“ / 500A 30“ / 700A 10“
Max. charg. curr. a battery at 25 ° C.	116A 60“ / 175A 30“ /350A 10“
Continous current for a battery block. at 12 VDC	~1 A
Pulse current (75 ms) for 1 battery block at 12 VDC	~8 A
Certificate	UN38.3, CE
Operating temperature range	15°C ... 60°C
Recommended temperature	25°C
Slave ESS block control via data bus	via CAN bus
Communication interface	MODBUS TCP
LCD display with current battery system status.	7” display in Master ESS
Battery charge indicator of a rechargeable battery	LED indicator
Remote monitoring with event log	(option) – online
Remote service	Software updates and monitoring via remote management
Preload	External system needed
IP class	IP55
High current connection between battery blocks	Busbar output
Estimated number of cycles (up to 70% SOH at 25°C)	10 000 / 40 000
Depth of discharge (DoD)	99%
Battery Chemistry	Li-ion NMC

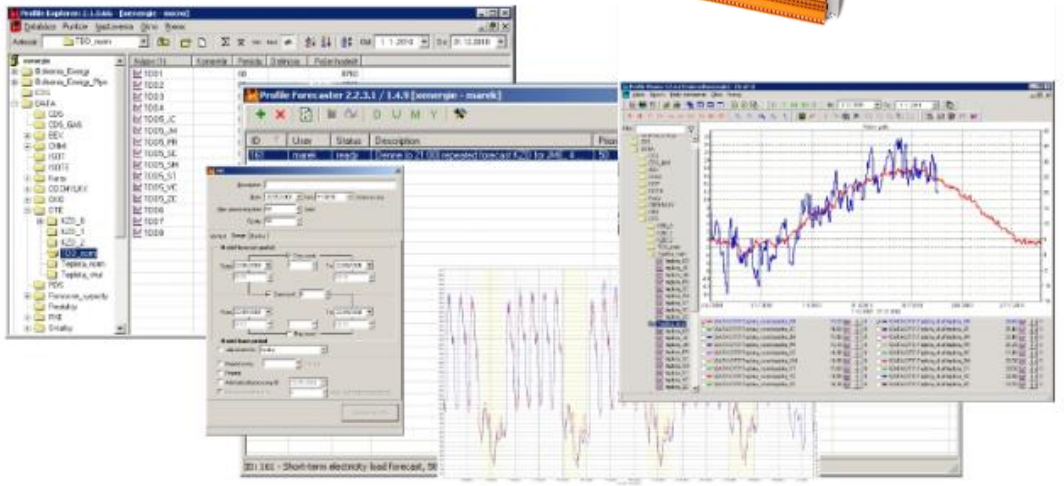
WARRANTY UP TO 40 000 CYCLES *

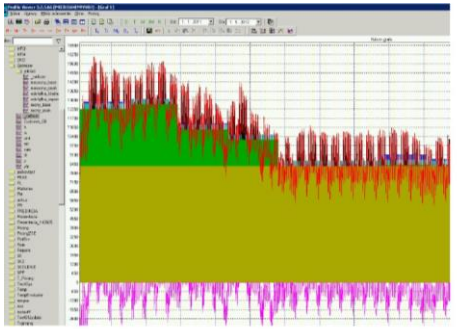
* Depending on storage configuration

- MicroRTU tool = complete dispatching including BMS reports
- MicroRTU sends **more than 50 different values** from each accumulator unit to our secure servers (TIER III) **every 5 seconds**
- All collected data is stored for the **entire warranty period or longer**.
- Exceedance warning module
- User account management option
- Web-based dashboard with live graphs







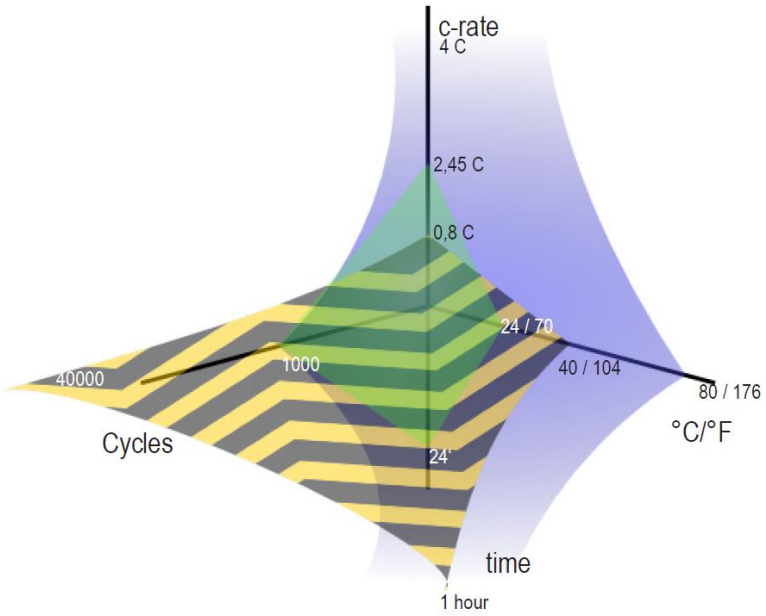


RUG

600 V

WHY ENERGY SOLUTIONS powered by LTW ?

- LTW is, together with BMZ, the largest energy producer - **the best Li-ion cell technology**
- Smart Power Station system for energy storage from Germany, Poland and the Czech Republic
- Individual configuration for the customer to achieve the most efficient return on investment
- Efficiency = **3/4 of Economic Success**
- LTW is the creator of **RTBR** solutions



RTBR = *Ready to be ready*

*Economic success belongs to the **prepared***

Jiří JANDA
george@ltw-battery.com
+420 737 911 512