MATRIX

1-10 kVA

SINGLE-PHASE ONLINE UPS

1:1 3:1

The ideal solution for:

- ✓ *DATA CENTER / SERVER*
- ✓ *TELECOMMUNICATIONS*
- ✓ *LOCAL AREA NETWORKS*
- ✓ *MEDICAL DEVICES / HOSPITALS*
- ✓ *CORPORATE OFFICES*

GTEC
Smart Energy Solutions

OVERVIEW

MATRIX is the **top-of-the-range UPS in the category of Online single-phase systems**, characterized by a very compact and at the same time extremely high-performance state-of-the-art structure.

In fact, this UPS is able to achieve performance at the top of the market, guaranteeing a **Power Factor of 1** over the entire range and **efficiency up to 95%** in Normal Mode.

The MATRIX series consists of five models with a **1/1** configuration, from 1 to 10 kVA, and is also available in the version with three-phase input and single-phase output **(3/1) in the size of 10 kVA**.

ADVANTAGES

OPTIMISED BATTERY MANAGEMENT

MATRIX offers extremely fast charging times thanks to the fact that it has built-in **high power chargers** as standard. In sizes of 1 to 3 kVA, a 1.5 A battery charger is installed, while for sizes of 6 to 10 kVA the current can be digitally calibrated up to a maximum of 4 A.

For all models, the KS version is also available with a higher power battery charger (settable) which allows to connect higher capacity batteries, via external cabinets, thus ensuring extended autonomy to the entire system.

The UPS is then equipped with the **autosensing function** that allows you to recognize in real time the number of battery cabinets installed, thus being able to calculate automatically and with extreme precision the residual autonomy of the system.

HIGH PERFORMANCE

MATRIX has been designed to achieve superior performance compared to other commercially available single-phase models.

In fact, MATRIX guarantees a **Power Factor of 1** over the entire range, thus ensuring even in smaller sizes an active power that corresponds to the nominal one.

The system, equipped with **the best available technology**, can achieve an **efficiency up to 95% in Normal Mode**, also offering the possibility of working in **parallel with up to 3 units** in the 6-10 kVA models.

MAXIMUM RELIABILITY

Built with state-of-the-art components, MATRIX can achieve a **Mean Time Between Failure (MTBF) 2 to 3 times higher** than the previous UPS generation.

TECHNOLOGY

- **IGBT inverter** with high efficiency PWM modulation
- **Digital Signal Processor (DSP) microprocessor**
- Built-in standard **Cold Start function**
- **Emergency Power Off (EPO) remote control**
- **Intelligent Slot** for AS400 interface, SNMP board, MODBUS board (optionals)
- Standard communication interfaces: **Smart RS232 and Smart USB**

HIGH EFFICIENCY

MATRIX boasts extremely high efficiency for its category, **up to 95% in Normal Mode**, ensuring an average 3% increase in efficiency compared to the previous generation. This level of performance, combined with the **Power Factor 1 on the entire range**, allows a significant saving of operating costs, and consequently offers the possibility of recovering the cost of the machine in very few years.

UPS Power	Efficiency		Losses		Annual savings*	
	Previous generation	MATRIX	Previous generation	MATRIX	100% load	50% load
1 kVA	88%	89% +1%	136,4 Wh	123,6 Wh -13 Wh	28 €	14 €
2 kVA	88%	93% +5%	272,7 Wh	150,5 Wh -122 Wh	268 €	134 €
3 kVA	88%	93% +5%	409,1 Wh	225,8 Wh -183 Wh	401 €	201 €
6 kVA	92%	95% +3%	521,7 Wh	315,8 Wh -206 Wh	451 €	226 €
10 kVA	92%	95% +3%	869,6 Wh	526,3 Wh -343 Wh	752 €	376 €

* Values referred to energy cost of 0.25€/KWh

ADVANCED COMMUNICATION

MATRIX is characterized by a **state-of-the-art communication system** that provides the user with a whole series of control functions, available not only through the LCD display and monitoring software, but also through the innovative mobile app with IoT (Internet of Things) connection.

LCD DISPLAY

The entire MATRIX range is equipped with an advanced **LCD display** that allows you to promptly view the main information on the status of the UPS, as well as to set the main system settings.

Through a simple and intuitive graphical interface it is possible to identify the operating status of the UPS, the input and output voltage, the battery status, the autonomy and the load level, all available in 8 different languages.

WINPOWER SOFTWARE

For an advanced control of the UPS it is possible to install the appropriate **WinPower management software**, compatible with all major operating systems.

The program is able to monitor, even remotely, the status of any UPS on the same LAN network, as well as to report any alarms and events. WinPower also allows you to set the automatic and safe shut-down of connected computer systems in the event of a sudden power failure.

GTEC EXPLORE APP

Thanks to the **innovative mobile app "GTEC Explore"**, based on the new IoT technology, users can monitor the status of their UPS at any time and wherever they are, directly from their smartphone.

The application, extremely intuitive and configurable from the display, allows you to view the main operational data such as: the operating status, the load percentage, the residual autonomy and the input and output voltage, for all the UPS of your network.

PRODUCT RANGE

MATRIX is available in the sizes **1, 2, 3, 6, 10 kVA** with **1/1 configuration** and in the size **10 kVA** with **3/1 configuration**. For each power size there is also a variant with an oversize battery charger (**KS version**).

Available across the entire MATRIX range

1. WLAN/WiFi connector*
2. Battery connector
3. Autosensing
4. RS232
5. USB port
6. Intelligent slots (SNMP-NMC / CMC / AS400N)
7. Dry contacts
8. Ethernet Port*
9. RPO

Available on sizes 1-3K

10. AC input
11. AC output
12. Input terminal
13. Output terminal

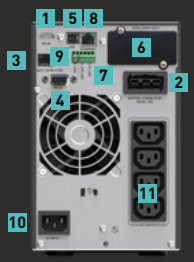
Available on sizes 6-10K

14. Bypass Switch
15. Terminal block
16. Input Switch
17. Optional parallel port

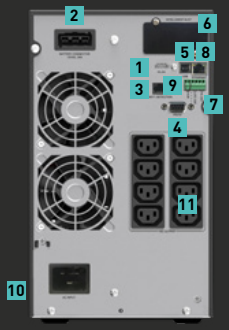
* IoT/App only

MATRIX 1-3K / MATRIX 1-3K-KS

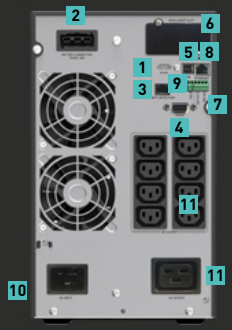
MATRIX 1K
MATRIX 1K-KS



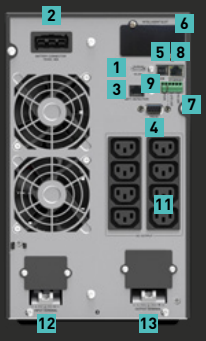
MATRIX 2K
MATRIX 2K-KS



MATRIX 3K



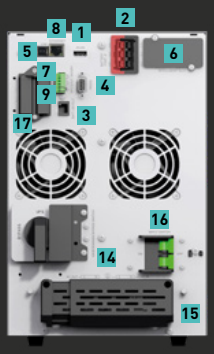
MATRIX 3K-KS



MATRIX 6-10K / MATRIX 6-10K-KS / MATRIX 10K (3:1) / MATRIX 10K-KS (3:1)

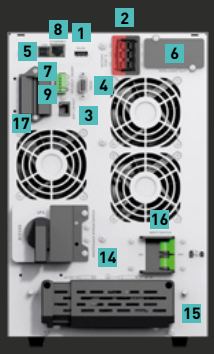
MATRIX 6K

MATRIX 6K-KS



MATRIX 10K

MATRIX 10K-KS



MATRIX 10K (3:1)
MATRIX 10K-KS (3:1)

MODEL	MXT1K0MM	MXT1K0MM-KS	MXT2K0MM	MXT2K0MM-KS	MXT3K0MM	MXT3K0MM-KS
Power	1000 VA / 1000 W		2000 VA / 2000 W		3000 VA / 3000 W	
MAIN INPUT						
Grid system	1 PH + N + PE					
Rated voltage / Frequency	200/208/220/230/240 VAC (derating 10% at 208 V, derating 20% at 200 V), 50/60 Hz					
Voltage range	160-300 V 100% load, 110-160 V derating to 50% load linearly					
Frequency range	40 Hz - 70 Hz (45 Hz - 55 Hz, 54 Hz - 66 Hz @ load > 60%)					
Power factor	>0,99					
Current THDi	<5%					
OUTPUT						
Rated voltage / Frequency	200/208/220/230/240 VAC (derating 10% at 208 V, derating 20% at 200 V), 50/60 Hz					
Power Factor	1					
Wave form	Pure sine wave					
Voltage THDv	<1% (linear load); <5% (non-linear load)					
Voltage accuracy	±1%					
Transient recovery	Compliant to EN62040-3 VFI-SS-313 Standard					
Inverter Overload	100% < load ≤ 105%, continuous 105% < load ≤ 125%, 5 minute 125 < load ≤ 150%, 30 seconds > 150%, 500 ms					
Bypass Overload	100% < load ≤ 105%, continuous 105% < load ≤ 125%, 5 minute 125 < load ≤ 150%, 30 seconds > 150%, 500 ms					
Frequency regulation (Battery mode)	50/60 Hz ±0.1%					
Crest factor	3:1					
BATTERIES						
Battery type	Pb					
Battery capacity	12 V / 7 Ah	Selectable	12 V / 7 Ah	Selectable	12 V / 9 Ah	Selectable
Number of batteries in series	3		6		6	
Battery rate voltage	36 VDC		72 VDC		72 VDC	
Backup time*	6 min 100% load 9,5 min 50% load	Depending on external batteries capacity	6 min 100% load 10 min 50% load	Depending on external batteries capacity	4 min 100% load 8 min 50% load	Depending on external batteries capacity
BATTERY CHARGER						
Charging current	1.5 A	Adjustable 2 ~ 8 A	1.5 A	Adjustable 2 ~ 8 A	1.5 A	Adjustable 2 ~ 8 A
Charging time	3 h to recover 90% capacity	Depending on external batteries capacity	3 h to recover 90% capacity	Depending on external batteries capacity	3 h to recover 90% capacity	Depending on external batteries capacity
SYSTEM						
Efficiency	Normal operation: 89% Eco Mode operation: 96% Battery operation: 86.5%		Normal operation: 93% Eco Mode operation: 97% Battery operation: 89%			
Display	LCD					
Protection degree	IP20					
Interface	Standard equipment: USB, RS232, RS485, RPO, Intelligent slot Optional: SNMP, dry contacts, parallel kit, Modbus					
ENVIRONMENT						
Operating temperature	0 ~ 40°C					
Storage temperature	0°C ~ 40°C (with battery, suggest to storage the battery below 25°C) -25°C ~ 55°C (without battery)					
Relative humidity	0 ~ 95% (no condensing)					
Noise (dBA at 1 meter far)	<45 dB		<50 dB			
Altitude	0 ~ 3000 m; load derated 1% per 100m, from 1000 ~ 3000m					
MECHANICAL DATA						
Dimensions W*D*H (mm)	145*404*220		192*428*318			
Weight (Kg)	12,8	6,4	26,0	11,0	26,4	11,4
Color	Black					

Note: technical specifications and data could be changed without notification

*With load PF 0.8

MODEL	MXT6K0MM	MXT6K0MM-KS	MXT010MM	MXT010MM-KS	MXT010TM*	MXT010TM-KS*
Power	6 KVA / 6 KW		10 KVA / 10 KW		10 KVA / 10 KW	
MAIN INPUT						
Grid system	1 PH + N + PE				3 PH + N + PE	
Rated voltage / Frequency	220/230/240 VAC, 50/60 Hz					
Voltage range	160-275 V 100% load, 110-160 V derating to 50% load linearly					
Rated current**	35 A	45 A	54 A	65 A	54 A (1-1) L1 48 A - L2/L3 18 A (3-1)	61 A (1-1) L1 51 A - L2/L3 21 A (3-1)
Frequency range	≤60% rated load: 40-70 Hz Rated load: 45-55 Hz (50 Hz system) / 54-66 Hz (60 Hz system)					
Power factor	>0,99				>0,95	
Current THDi	<3% Linear load <5% non linear load				<30% at 3 phase input <5% at 1 phase input	
OUTPUT						
Rated voltage / Frequency	220/230/240 VAC, 50/60 Hz					
Power Factor	1					
Wave form	Pure sine wave					
Voltage THDv	<1% (linear load); <5% (non-linear load)					
Voltage accuracy	±1%					
Transient recovery	Compliant to EN62040-3 VFI-SS-111 Standard					
Inverter overload	100% < load ≤ 105%, continuous 105% < load ≤ 125%, 10 minute 125 < load ≤ 150%, 30 seconds > 150%, 500 ms					
Bypass overload	100% < load ≤ 105%, continuous 105% < load ≤ 125%, 10 minute 125 < load ≤ 150%, 30 seconds > 150%, 500 ms					
Frequency regulation (Battery mode)	50/60 Hz ±0.1%					
Crest factor	3:1					
BATTERIES						
Battery type	Pb					
Battery capacity	12 V / 7 Ah	Selectable	12 V / 9 Ah	Selectable	12 V / 9 Ah	Selectable
Number of batteries in series	20***					
Battery rate voltage	240 VDC					
Backup time (20 Battery)****	8 min 100% load 12,5 min 50% load	Depending on external batteries capacity	5 min 100% load 8,5 min 50% load	Depending on external batteries capacity	5 min 100% load 8,5 min 50% load	Depending on external batteries capacity
BATTERY CHARGER						
Charging current	Range: 1~4 A Default: 1,4 A	Range: 2~12 A Default: 4 A	Range: 1~4 A Default: 2 A	Range: 2~12 A Default: 4 A	Range: 1~4 A Default: 2 A	Range: 2~12 A Default: 4 A
Charging time (2.1 A recharging current)	3 h to recover 90% capacity	Depending on external batteries capacity	3 h to recover 90% capacity	Depending on external batteries capacity	3 h to recover 90% capacity	Depending on external batteries capacity
SYSTEM						
Efficiency	Normal operation: 94.9% Eco Mode operation: 98.6% Battery operation: 92.9%		Normal operation: 94.6% Eco Mode operation: 98.7% Battery operation: 91.8%		Normal operation: 94.6% Eco Mode operation: 98.8% Battery operation: 91.8%	
Display	LCD					
Protection degree	IP20					
Interface	Standard equipment: USB, RS232, RS485, RPO, Intelligent slot Optional: SNMP, dry contacts, parallel kit, Modbus					
ENVIRONMENT						
Operating temperature	0°C ~ 50°C (Derating 50% above 40°C)					
Storage temperature	-15°C ~ 40°C (with battery, suggest to storage the battery below 25°C) -25°C ~ 55°C (without battery)					
Relative humidity	0 ~ 95% (no condensing)					
Noise (dBA at 1 meter far)	<50 dB		<55 dB			
Altitude	0 ~ 3000 m; load derated 1% per 100m, from 1000 ~ 3000m					
MECHANICAL DATA						
Dimensions W*D*H (mm)	225*416*589	225*416*353.2	225*416*589	225*416*353.2	225*416*589	
Weight (Kg)	57.9 (20 batteries)	13.5	68.2 (20 batteries)	15.5	68.7 (20 batteries)	22.7
Color	Black					

Note: technical specifications and data could be changed without notification

* The Matrix 10k 3:1 model can also operate in 1:1 mode

**200 VAC input volatage / with Nominal Power

*** It's also possible to set 16 batteries in series at the factory, but the standard GTEC cabinet is not available for this configuration

****With load PF 0.8

BATTERY EXTENSIONS

MODEL	VDC	VOLTAGE (V) and CAPACITY (Ah)	NUMBER OF BATTERIES	TOTAL TIME IN MINUTES		DIMENSIONS W*D*H (mm)	MASS (Kg)
				TYPICAL	FULL LOAD		
BATTERY CABINET FOR MATRIX 1K							
MXTBP1K	36	Empty	Empty	-	-	145*404*220	4,2
MXTBP1K-037	36	12 V / 7 Ah	3	24	15	145*404*220	10,8
MXTBP1K-039	36	12 V / 9 Ah	3	28	17,5	145*404*220	11,7
MXTBP1K-067	36	12 V / 7 Ah	6	40	25	145*404*220	17,4
MXTBP1K-069	36	12 V / 9 Ah	6	47	31	145*404*220	19,2
BATTERY CABINET FOR MATRIX 2K							
MXTBP2-3K	72	Empty	Empty	-	-	192*428*318	8,7
MXTBP2-3K-067	72	12 V / 7 Ah	6	25	16	192*428*318	21,9
MXTBP2-3K-069	72	12 V / 9 Ah	6	29	18,5	192*428*318	23,7
MXTBP2-3K-127	72	12 V / 7 Ah	12	42	26	192*428*318	35,1
MXTBP2-3K-129	72	12 V / 9 Ah	12	50	33	192*428*318	38,7
BATTERY CABINET FOR MATRIX 3K							
MXTBP2-3K	72	Empty	Empty	-	-	192*428*318	8,7
MXTBP2-3K-067	72	12 V / 7 Ah	6	17,5	10,5	192*428*318	21,9
MXTBP2-3K-069	72	12 V / 9 Ah	6	20	12,5	192*428*318	23,7
MXTBP2-3K-127	72	12 V / 7 Ah	12	28	18	192*428*318	35,1
MXTBP2-3K-129	72	12 V / 9 Ah	12	34	22	192*428*318	38,7
BATTERY CABINET FOR MATRIX RT 6K							
MXTBP10K	240	Empty	Empty	-	-	416*225*589	23,6
MXTBP10K-207	240	12 V / 7 Ah	20	31	20	416*225*589	67,6
MXTBP10K-209	240	12 V / 9 Ah	20	35	22	416*225*589	73,6
MXTBP10K-407	240	12 V / 7 Ah	40	52	34	416*225*589	111,6
MXTBP10K-409	240	12 V / 9 Ah	40	67	40	416*225*589	123,6
BATTERY CABINET FOR MATRIX 10K							
MXTBP10K	240	Empty	Empty	-	-	416*225*589	23,6
MXTBP10K-207	240	12 V / 7 Ah	20	18,5	11,5	416*225*589	67,6
MXTBP10K-209	240	12 V / 9 Ah	20	22	13	416*225*589	73,6
MXTBP10K-407	240	12 V / 9 Ah	40	29	18	416*225*589	111,6
MXTBP10K-409	240	12 V / 9 Ah	40	36	23	416*225*589	123,6

GTEC SERVICE

GTEC supports its customers throughout the whole product life cycle, providing technical assistance and after-sales service at the highest professional standards, so to produce the best partnership experience.

MAINTENANCE is an essential activity in order to guarantee a safe and stable load protection. GTEC shows maximum care about this topic, providing the best service in terms of experience, instrumentation and safety level.

The **TECHNICAL SUPPORT** service, delivered through the dedicated Help Desk platform, guarantees prompt answers to customers' requests and allows them to directly schedule maintenance activities.

The partnership between GTEC and its customers gets consolidated through the **TRAINING SESSIONS** proposal for technical staff, so that each user can operate on the UPSs with maximum consciousness and safety.

Also, in the GTEC Service offers, a **PROJECT CONSULTING** team is available, in order to provide the best solution according to the designer's needs.

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