Matrix and Matrix RT

1-10 kVA - Single-phase online UPS

Matrix and Matrix RT
Overview

Matrix RT
1-10 kVA

1:1 3:1

10kVA only

Matrix
1-10 kVA

1:1 3:1

10kVA only

PF1

Power factor 1
Even for the smallest sizes.

Compact structure
RT models are suitable for any standard 19″ rack cabinet.

High-performance
Efficiency up to 95% in Normal Mode.

Maximum reliability
MTBF 2 to 3 times higher than previous generation.

Matrix and Matrix RT
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 batteries** even with short autonomy time

Matrix

3% increase in efficiency compared to the previous generation.

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

Matrix RT

2% increase in efficiency compared to the previous generation.

UPS Power	Efficiency		Losses		Annual savings*	
	Previous generation	MATRIX RT	Previous generation	MATRIX RT	100% load	50% load
1 kVA	87%	89% +2%	149,4 Wh	123,6 Wh -26 Wh	57 €	28 €
2 kVA	89%	93% +4%	247,2 Wh	150,5 Wh -97 Wh	212 €	106 €
3 kVA	92%	93% +1%	260,9 Wh	225,8 Wh -35 Wh	77 €	38 €
6 kVA	93%	95% +2%	451,6 Wh	315,8 Wh -136 Wh	297 €	149 €
10 kVA	94%	95% +1%	638,3 Wh	526,3 Wh -112 Wh	245 €	123 €

* Values referred to energy cost of 0.25€/KWh

Matrix and Matrix RT
Product range features

Matrix – Entire range

- WLAN/WiFi connector (IoT/App)
- Frequency Autosensing
- RS232 port
- USB port
- Intelligent slots (SNMP-NMC
- / CMC-Card / AS400N)
- Dry contacts
- Ethernet Port (IoT/App)
- RPO/EPO

Matrix Tower– 1-3 kVA

- Input plug
- Output sockets
- Input terminal (3K-KS Tower only)
- Output terminal (3K-KS Tower only)
- External Battery connector

Matrix Tower – 6-10 kVA

- Manual Bypass Switch
- Input Switch
- Terminal block
- Optional parallel port
- External Battery connector

Matrix 1K / Matrix 1K-KS

Matrix 2K / Matrix 2K-KS

Matrix 3K

Matrix 3K-KS

Matrix 6K

Matrix 6K-KS

Matrix 10K

Matrix 10K-KS

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

Matrix and Matrix RT
Product range features

Matrix RT – Entire range

- WLAN/WiFi connector (IoT/App)
- Frequency Autosensing
- RS232 port
- USB port
- Intelligent slots (SNMP-NMC
- / CMC-Card / AS400N)
- Dry contacts
- Ethernet Port (IoT/App)
- RPO/EPO

Matrix RT – 1-3 kVA

- Input Plug
- Output Socket
- External Battery connector

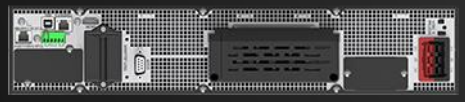
Matrix RT – 6-10 kVA

- Terminal block
- Optional parallel port
- External Battery connector

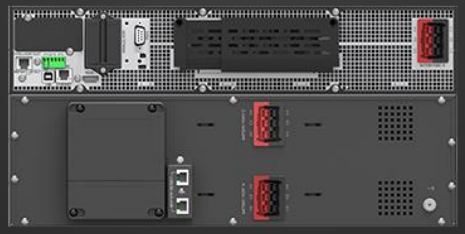
Matrix RT 1K / Matrix RT 1K-KS
Matrix RT 2K / Matrix RT 2K-KS

Matrix RT 3K / Matrix RT 3K-KS

Matrix RT 6-10K



Matrix RT 6-10K-KS



Matrix RT 10K (3:1)

Matrix RT 10K-KS (3:1)

Matrix and Matrix RT
LCD Display

Matrix and Matrix RT
LCD Display

- **8 available languages**
- **Input, Output and battery measures**
- **Customised voltage and frequency** can be set
- **Battery capacity setting**
- **Operating mode selection** (Normal, eco or frequency converter)
- **Digital input and output contact setting**
- **Battery test**

Matrix and Matrix RT
GTEC Explore App

Matrix and Matrix RT
GTEC Explore App

- **UPS status monitoring**
- View of the **main UPS operational data**
- **Load percentage** monitoring
- **Residual back-up time** monitoring
- **Input and output voltage** check
- Monitor **all the UPSs of your network**

Matrix and Matrix RT
Technical data Tower 1-3K

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 70% load	Depending on external batteries capacity	6 min 100% load 10 min 70% load	Depending on external batteries capacity	4 min 100% load 8 min 70% 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

Matrix and Matrix RT
Technical data Tower 6-10K

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 70% load	Depending on external batteries capacity	5 min 100% load 8,5 min 70% load	Depending on external batteries capacity	5 min 100% load 8,5 min 70% 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

Matrix and Matrix RT
Technical data RT 1-3K

MODEL	MXR1K0MM	MXR1K0MM-KS	MXR2K0MM	MXR2K0MM-KS	MXR3K0MM	MXR3K0MM-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 70% load	NA	6 min 100% load 10 min 70% load	NA	4 min 100% load 8 min 70% load	NA
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: 92.5% Eco Mode operation: 97% Battery operation: 89%		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)	438*445*85.5 (2U)		438*600*85.5 (2U)			
Weight (Kg)	14,3	8	23,3	10,6	26,2	11
Color	Black					

Note: technical specifications and data could be changed without notification
*With load PF 0.8

Matrix and Matrix RT
Technical data RT 6-10K

MODEL	MXR6K0MM+BP167	MXR6K0MM-KS	MXR010MM+BP209	MXR010MM-KS	MXR010TM+BP209*	MXR010TM-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**	34 A	42 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	16***		20****			
Battery rate voltage	192 VDC		240 VDC		240 VDC	
Backup time (with standard number of batteries)*****	5,5 min 100% load 9 min 70% load	Depending on external batteries capacity	5 min 100% load 8,5 min 70% load	Depending on external batteries capacity	5 min 100% load 8,5 min 70% 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)	438*559* 215(5U) UPS + Battery cabinet	438*540*86.3(2U)	438*559* 215(5U) UPS + Battery cabinet	438*540*86.3(2U)	438*559* 215(5U) UPS + Battery cabinet	438*540*86.3(2U)
Weight (Kg)	59,4 UPS + Battery cabinet	13.6	76,2 UPS + Battery cabinet	15.5	76,5 UPS + Battery cabinet	15.8
Color	Black					

Note: technical specifications and data could be changed without notification
* The Matrix RT 10k 3:1 model can also operate in 1:1 mode
** 200 VAC input voltage / with Nominal Power
*** It's also possible to set 20 batteries in series at the factory, but the standard GTEC cabinet is not available for this configuration
**** 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

Thanks for your attention

G-Tec Europe S.r.l.
Strada Marosticana 81/13
36031 Dueville (VI) Italy
+39 0444 361321
info@gtec-power.eu