INNOVASIS
INNOVATIVE ENERGY SYSTEMS

3:3 FAZ

3:1 FAZ

1:3 FAZ

RAILWAY POWER Systems

10-120 kVA

TRANSPORTATION

YERLİ ÜRETİM

RAILWAY POWER SYSTEMS

The INNOVASIS MTLT Series uses the latest DSP technology, which has been developed specifically for railway applications and can be programmed to suit a wide range of electrical conditions. With the MTLT series, efficiency, reliability and functionality have been increased to the highest levels allowed by current technology.

- Working with 3-phase or 1-phase input voltage
- High charge current capacity
- Low current harmonic distortion at input
- High input power factor
- Cold start feature
- Static and maintenance bypass switch
- Short circuit and overload protection at output
- External REPO input
- 512 event record (512 events, 45000 alarms)
- Clock and calendar
- Automatic battery test, remaining battery time indicator
- Temperature compensated charging system
- 2 RS232 serial ports and 12 dry contact outputs
- 3 DSP controlled modular structure
- Optional SNMP and MODBUS adapters
- Optional graphic panel
- Manufactured according to EC EN62040 directive
- Fully digital structure
- Small footprint
- Eco mode operation (optional)
- Fewer electronic components
- Output current limitation
- Advanced control at input
- Selectable input/output voltage/frequency range
- Split by-pass input (second input)
- Output DC leakage protection
- Separate DSP for inverter control
- Separate DSP for PFC
- 3-level battery protection
- Charge/Discharge current indicator
- Advanced remote control features
- 5-year spare parts support
- 2-year warranty

RAILWAY POWER SYSTEMS

MODEL	MTL3310D	MTL3320D	MTL3330D	MTL3340D	MTL3350D	MTL3360D	MTL3380D	MTL33100D	MTL33120D
Power (kVA)	10	20	30	40	50	60	80	100	120
INPUT (1 phase or 3 phase)									
Voltage	380/400 VAC 3P + N + G OR 220/230 VAC 1P + N + G								
Voltage tolerance	± 20%								
Frequency	40-70 Hz								
Power factor (@ 100% load)	≥ 0.99								
THDI (@ 100%load)	≤ 5% (working in 1 Phases),≤ 10% (working in 3 Phases)								
By-pass voltage	220/230 VAC 1P + N, ± 10% / 50Hz ± 1%								
Protections	Fuses, Voltage & Frequency Tolerance, Input Power Limit, Phase Sequency Indicator								
OUTPUT (1 phase)									
Power (kW)	9	18	27	36	45	54	72	90	108
Power factor	0,9								
Output isolation transformer	Optional								
Voltage	220/230 VAC 3P + N, Static tolerance ≤ 1%, Dynamic tolerance ≤ 5% (Recovery time to 1% 20ms)								
Voltage THD	≤ 2% (@ 100% linear load) , ≤ 5% (@ nonlinear load)								
Frequency	50Hz / 60Hz (Output frequency adjustment)								
Frequency tolerance	Line synchronized: ± 2% (± 1% adjustable) - Free running (from battery): ± 0.05 Hz								
Frequency change rate	maximum 1 Hz/sec								
Efficiency (@ 100%load)	up to 93%				up to 94%				
Crest factor	3:1								
Overload capacity	@ 100% - 125% load : 10 min. @ - %125 - %151 load :1 min. @ - > 151% load : by-pass								
Other protections	Intelligent short circuit protection, voltage tolerance protection, DC balance, regenerative load, current limiting protections, Voltage and frequency fixing feature against unbalanced load								
BATTERIES									
Type	Different types of dry and wet batteries can be used depending on the application								
Battery number	2x9 to 2x25 12V batteries or equivalent								
Charging voltage	± 122 VDC / ± 337VDC								
Battery cabinet	External								
Battery operation temp.	20º-25ºC (Battery Charging with Temperature Compensation)								
Restart	When the mains voltage returns, it monitors the mains and automatically activates with a certain delay, has a "soft start" feature when commissioning (It can also operate at full load without battery, as long as there is mains voltage)								
Protection	3 level alarms, Battery end of discharge protection, Battery fuses, Charging current limit, Temperature compensation, Boost charge								
Battery test	Standard every 72 hours (adjustable)								
GENERAL									
Standards	EN62040-1, EN62040-2, EN62040-3, EN IEC 60068-3-3, EN61000-4-(2,3,4,5,6,8)								
User interface	4 lines LCD panel, Mimic leds, 5 vector buttons, Buzzer, Optional TFT panel								
Indicators	P-N voltage, P-P voltage, Current, Power, Crest Factor, Frequency, PF, Service Time								
Advanced	Auto diagnostics, 3 maintenance time indicators, Calibration over RS232,operating hour meter								
Communication	2xRS232 serial ports, 4 standard and 8 optional DRY contact alarm relays (Optional: dry contacts can be increased as required)								
Inputs	EPO input, Interactive battery panel input, Genset input								
Genset kit	Detection input standard								
Software	Standard T-Mon UPS Management Software (3 clients + 1 server management)								
Alarm logging	Standard:with time & date 512 events								
Eco mode	Available (Requires additional hardware)								
Protection	Power module over-temperature, Overcurrent, Temperature high alarm								
Operating temp. range	0ºC - 40ºC (storage -25ºC - +55ºC)								
Protection class	IP20								
Humidity	90% max. non-condensing (storage 20% - 95)								
Altitude	< 1000m above sea level (0.9% power reduction for every 100 m above 1000 m - according to EN 62040-3)								
Acoustic noise	< 57dBA			< 62 dBA			< 64 dBA	< 68 dBA	
Net weight (kg)	187	244	320	335	390	457	540	560	598
Dimension (mm) HxWxD	1040x400x815		1440x515x855				1770x825x855		
OPTIONS									
High charging current capacities	Powered rectifier for fast charging of long-term batteries								
Software	T-Mon Admin Multi UPS monitoring 10-50-100-200 clients, T-Mon Server 50-100-200 clients								
Adaptors	SNMP, RS485, Remote monitoring panel, MODBUS (RS485 or TCP/IP), USB Alarm Logger, TCP/IP, GSM/GPRS Modem, Comport multiplexer								
Parallel operation	up to 8								

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