

# REC-MT

## AC-DC POWER SOURCE



POSITIVE PROBLEM SOLVING **+ =**

The REC-MT are a series of rack mounting rectifier modules. Each unit is suitable as a standalone DC power source or as a dedicated battery charger.

All parameters are programmable via the dip switches on the front of the module. Alternatively they can be used with an optional control and monitoring unit, which delivers operating parameters via an internal RS-485 Bus. Modules will still operate with their default values if the monitoring unit is disconnected, therefore the continuity of all connected loads and the charging of batteries are guaranteed without any interruption.

- + Hot Plug in Design with Backplane Connection
- + LED Indication for Module Status Reporting
- + Protection Against Under/Over Voltage
- + High Efficiencies of  $\geq 95\%$
- + Optional DC Controller



## FURTHER DETAILS

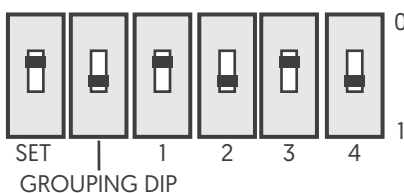
Because the units are highly modular, it is possible to configure systems with multiple units per rack for higher power or n+1 redundant applications. The 3-phase models of the REC-MT series operate from a 3-wire, 3-phase mains input connection without neutral. The mating connector for input and output is supplied separately so the units can be used with or without a 19" subrack as long as correct airflow is allowed for. The robust construction with rugged metal handles is ideal for industrial hot swap applications. These rectifiers are also ideal for high voltage power plants, substations, oil & gas installations and many other applications.

### TECHNICAL DATA

GENERAL	
Input Frequency Range	45 - 65Hz
Voltage Stabilisation Accuracy	± 0.5%
Current Stabilisation Accuracy	± 1% [± 0.5% for 48Vdc models]
Efficiency	≥95% [≥91% for 48Vdc models]
Charge Characteristic Line	VI characteristic according to DIN 41772 / DIN 41773
Dynamic Accuracy of the Charging Voltage	<3% of $V_{e\_NOM}$ at load change from 10% - 90% - 10%, transient time <50ms
Short Circuit Protection	15%-30% of $I_{NOM}$ when in short circuit
Parallel Operation	Yes, current sharing ± 3%
Internal Decoupling Diode at the Output	Yes, in positive output line
Communications Interface	RS-485
Ambient Temperature	Operation temperature: -20°C to +50°C, storage temperature: -40°C to +60°C
Humidity	≤95% relative humidity [≤90% relative humidity for 48Vdc models]
Cooling	Air natural [models with suffix FC3 are fan cooled]
Climatic Conditions	IEC-68-2-2, IEC-68-2-3, IEC-68-2-6
Max. Installation Altitude	≤2000m
Audible Noise	<50db
Compliance to EMC Standards	EN 61000-4-2, EN 61000-4-3, EN 61000-4-6, EN 61000-4-12
Connections	AC input, DC output and signals on the rear of the unit
CE Conformity	Yes
Air Pressure	70 - 106 Pa
Insulation Resistance	Input chassis and output >10M Ohms at 500Vdc
Dielectric Strength	2000V between input, output and chassis for 1 minute

### DIP SWITCHES

Each unit is very configurable, as settings can be configured by using the DIP Switches and the up/down buttons. To begin, the first DIP switch must be placed in position 1, and the required function entered on the remaining DIP switches. By pressing the V/A button once the display will flash. The value can now be adjusted using the up/down buttons. By pressing the V/A button once more, the values are stored. An example of possible REC-MT 220-10A-ANS configurations is shown right:



Dip Switches	Function	Setting Range	Default
0000	Working mode	0-Independent, 1-Manual, 2-Automatic	2
0001	Communication Protocol	0-Modbus, 1- ZTM	1
0010	Over voltage alarm	Over voltage threshold - 300V	260V
0011	Under voltage alarm	Under voltage threshold-95V	95V
0100	Charging state	0-Float charge, 1-Boost charge	0
0101	Float charge voltage	190V-300V	242V
0110	Boost charge voltage	176V-300V	253V
0111	Charging current limit set	10%-105% rated current	105%
1000	Current threshold float to boost charge	105%	80%
1001	Current threshold boost to float charge	0.5	20%
1010	Tail current charging time	0-10 Hours	3
1011	Boost charge time	0-99 Hours	10
1100	Boost charge cycle	0-999 Days	180
1101	Fault output node set	0-Normally Open, 1-Normally Closed	0

## SELECTION TABLE

Part Number	Max. Power	VAC Input	Input Current	Nominal V <sub>OUT</sub>	V <sub>OUT</sub> Range	Nominal I <sub>OUT</sub>
REC-MT 24-50A-ANS	1500W	230VAC	9A	24VDC	21 - 36VDC	50A at 24V
REC-MT 24-50A-AN3	1500W	350 - 460VAC	4.8A	24VDC	21 - 37VDC	50A at 24V
REC-MT 48-30A-ANS	1800W	230VAC	9A	48VDC	41 - 60VDC	30A at 48V
REC-MT 110-20A-ANS	3kW	230VAC	14A	110VDC	95 - 150VDC	20A at 132V
REC-MT 110-20A-AN3	3kW	350 - 460VAC	4.6A	110VDC	95 - 150VDC	20A at 143V
REC-MT 220-10A-ANS	3kW	230VAC	14A	220VDC	190 - 300VDC	10A at 285V
REC-MT 220-10A-AN3	3kW	350 - 460VAC	4.6A	220VDC	190 - 300VDC	10A at 285V
REC-MT 110-40A-AN3	6kW	350 - 460VAC	9.2A	110VDC	95 - 150VDC	40A at 143V
REC-MT 220-20A-AN3	6kW	350 - 460VAC	9.2A	220VDC	190 - 300VDC	20A at 285V

## FURTHER DETAILS

Part Number	Default Value of Charging Voltage	O/P Overvoltage Vo> [Factory Set]	Voltage Ripple	Power Factor	Approx Weight	Dimensions [W × H × D]
REC-MT 24-50A-ANS	26 - 27Vdc	32Vdc	≤±0.5%	≥0.99	9kg	139 × 263 × 325(mm)
REC-MT 24-50A-AN3	21 - 37Vdc	32Vdc	≤±0.5%	≥0.93	9.5kg	139 × 263 × 325(mm)
REC-MT 48-30A-ANS	41 - 60Vdc	48Vdc	≤±0.5%	≥0.99	9kg	139 × 263 × 325(mm)
REC-MT 110-20A-ANS	110 - 140Vdc	156Vdc	≤20mV	≥0.93	9kg	139 × 263 × 325(mm)
REC-MT 110-20A-AN3	110 - 120Vdc	151Vdc	≤20mV	≥0.93	9kg	139 × 263 × 325(mm)
REC-MT 220-10A-ANS	220 - 240Vdc	302Vdc	≤40mV	≥0.93	9kg	139 × 263 × 325(mm)
REC-MT 220-10A-AN3	220 - 240Vdc	302Vdc	≤40mV	≥0.93	9kg	139 × 263 × 325(mm)
REC-MT 110-40A-AN3	110 - 120Vdc	151Vdc	≤20mV	≥0.93	16kg	154 × 355 × 400(mm)
REC-MT 220-20A-AN3	220 - 240Vdc	302Vdc	≤40mV	≥0.93	16kg	154 × 355 × 400(mm)

## OPTIONS



### /USV6 [DC Controller]

The USV6 DC Controller can be used to control and monitor REC-MT units via the CAN communication bus. The USV6 can be used with a wide variety of power supplies, DC-DC converters, inverter modules and batteries as a universal programmable monitoring device with multiple thresholds.

The unit can measure up to 3 different V & I values, and these can be shown on the display. The 9 digital inputs are individually programmable, as are the 4 relay outputs available for remote signaling of thresholds or alarms.



### /W [Wall Mounting Bracket]

A 5mm plated steel bracket allows the REC-MT to be wall mounted, with either its side or rear face on the wall, so that users still have access to the module without taking the bracket off the wall. Brackets are only available for models with outputs of 110V/20A or 220V/10A.



### /RC [19" Rackmounting Case]

A 19" rackmounting case can be provided to mount the REC-MT into a cabinet. Either two or three modules can be fitted per rack, depending on the chosen model.

Every effort is made to ensure that the information provided within this technical summary is accurate. However, ETPS Ltd must reserve the right to make changes to the published specifications without prior notice. Where certain operating parameters are critical for your application we advise that they be confirmed at the time of order. ETPS Ltd specialises in modifying its proven platforms to suit your needs. Please contact our office if your requirement is non-standard. Please note that your actual unit may differ from those shown.



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