UNIPOWER
POWERING TECHNOLOGY

Micro ARR-M SERIES

THREE PHASE SCR CHARGER
24, 48, 130 & 250VDC | 160W to 16kW

10-1006

For utility, industrial and other standby applications

ARR-M SERIES FLOAT CHARGERS

Simplified operation, minimum maintenance, long, economical service... are a few of the advantages you get with a three-phase, high-power ARR-M charger. Electrical and mechanical design features make it ideal for a wide variety of utility, industrial and other standby power supply applications.

INPUT AND OUTPUT RATINGS

Standard Inputs: 208, 240, 480VAC, three phase, 60Hz, 6-Pulse, Filtered output.

575, 600 VAC, and other 3-Phase Input Voltages available, also 50Hz models available-consult the factory.

12-Pulse models available for 60Hz and 50Hz - please consult the factory

Output Voltages: 24, 48, 125, 250VDC
Output Amperage: 25A - 500A
(up to 1000A available - consult the factory)

ELECTRICAL FEATURES

Standard Control Modules
All three-phase ARR-M chargers, regardless of output voltage & current utilize the same control. This feature allows for minimum parts inventory and simplifies maintenance.

Regulation
DC float voltage is maintained within ±0.5 percent from no load to full load with input frequency variations of ±5 percent and with AC input voltage variation of +10%/-12% of the nominal input voltage.

During operation the maximum output transient does not exceed 6% of the initial steady-state voltage for sudden load changes between 10% and 90% of rated output. Recovery takes less than 300 milliseconds.

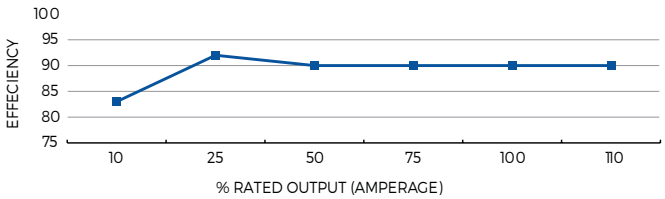
Current Limiting
The current limiting circuit is factory set at 100 percent and is adjustable from 20 percent up to 100 percent of rated output. It will hold down to short circuit.

FIVE YEAR WARRANTY

FEATURES & BENEFITS

- Microprocessor Controlled
- Digital Metering
- Simultaneous Voltage & Current Readings
- 24, 48, 125 & 250 volt models*
- 25A to 500A models*
- Listed to UL/CSA
- CE safety and EMC standards tested and compliant **
- Designed to NEMA PE5 standard insures reliable performance under real world conditions
- Low Maintenance
- Common control board for all output voltages and current ratings reduce spares requirements and simplifies maintenance.
- Remote Communications - MODBUS & DNP3
- User definable control and alarm set points
- Temperature Compensation
- High efficiency & power factor
- Design provides for reliable power requirements on or off the battery

* Other models available – please consult the factory. ** 50Hz models



www.unipowerco.com
North America & CALA: +1 954-346-2442 · EMEA: +1 561-990-3830 · sales@unipowerco.com

Power Factor
The typical power factor is 0.88 when tested on a resistive load and batteries.

Electrical Noise – Filtered Output
Nominal ripple when connected to a battery rated four times the charger output current rating:

- 24V & 48V Models – 30mV or less (32dBrnc) (15mV available with extra filtering)
- 125V Models – 100mV (30mV available with extra filtering)
- 250V Models – 200mV (150mV available with extra filtering)

Off-battery Operation
The ARR-M product series can be operated on a principally resistive load with the battery disconnected for maintenance purposes.

Circuit Protection

- Selection of input AC circuit breakers to suite input voltage and capacity as specified by client.
- 10kAIC and higher capacity rating of output DC circuit breakers available.
- Also, a single pole DC fuse is provided in the positive leg of the DC output.
- Surge suppression on input and output for protection of the transient voltages.
- Optional lightning arrestor available for over-voltage transients caused by external lightning.
- Reverse polarity.

ENVIRONMENTAL CONDITIONS

Ambient Operating Conditions
The ARR-M series charges will operate at 100% of rated DC output, continuously in ambient temperatures of 32°F to 122°F (0°C to 50°C) up to an altitude of 3,300 ft. (1,000m). De-rating of 3.6°F (2°C) for every 990 ft. (300m) over 3,300 ft. above sea level. These units can be safely stored for up to one year at temperatures ranging from -40°F to 185°F (-40°C to 85°C).

Humidity
The ARR-M series chargers will continue to operate in humidity levels of 0-95% (non-condensing).

Audible Noise
45-65 dBa at 3 ft. (1m) from any vertical surface of the charger.

MECHANICAL FEATURES

- Enclosure – NEMA-1 (IP20), steel with hinged front panel door
- Finish – Baked powder coat; ANSI-61 Gray
- Cooling – Natural convection cooling up to 100A output current; forced air assisted cooling for units above 100A output current
- Door opens approximately 90 degrees for easy access to interior
- Control board mounted on backside of door for easy access
- Serviceable components are accessible and removable from the front
- Knockouts for cables are provided
- Cabinets are floor mounted and provide a 3 inch clearance at the bottom to facilitate handling by a lift truck or pallet truck
- Two half turn screw terminals are provided for standard door fastening

DESIGN FEATURES

- Listed to UL/ANSI 1012
- NEMA PE5 complaint
- CSA C22.2 107.1 certified and applicable IEC standard compliant
- 30 year design life
- MTBF – 300,000 hours
- MTTR – less than one hour

STANDARD FEATURES

- Microprocessor controlled
- Digital Display: 2 line by 20 characters; simultaneous display of voltage and current with 0.5% accuracy
- High Voltage Shutdown
- Common charger fail (two sets of form-c contacts)
- Float and Equalize settings are via keypad
- Individual current limit setting for Float and Equalize
- Front Panel Indicators
  - Charger fail LED: Red (flashing)
  - AC on LED: Green
- Event Log: last 150 charger events
- Equalize Timer – 1 to 4095 Hours (one hour increments)
- Periodic Equalize - 1 to 4095 Days (one day increments)
- Consult the factory for Hi Capacity Breakers.
- Charge Modes
  - Float – Manual & Automatic
  - Equalize – Manual & Automatic
  - Anti-depressant – Ni-cad batteries
  - Formation – battery restoration

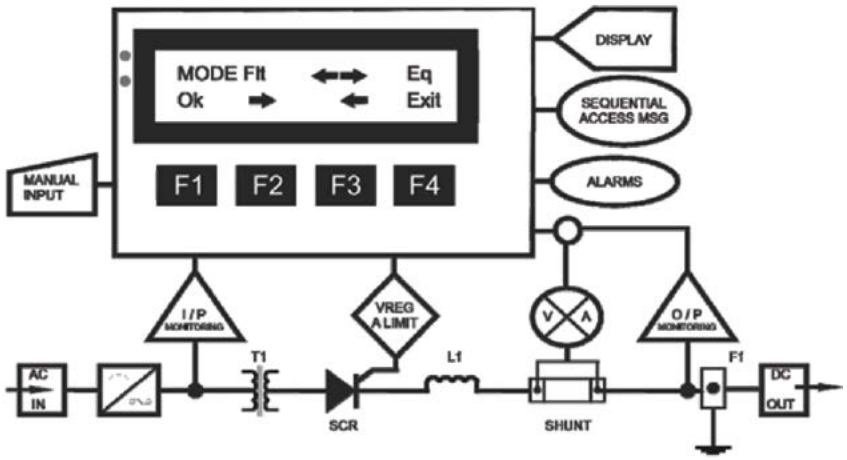
STANDARD ALARM PACKAGE

- Rectifier Fail
- Battery High DC Voltage
- Battery Low DC Voltage
- Charger High DC Volts
- Charger Low DC Volts
- Ground Fault (POS)
- Ground Fault (NEG)
- AC Fail
- Charger Fail (Summary)
- Rectifier Fail
  - Rectifier Fail is triggered by low DC current (2% of rated output), AC Fail, and decaying DC voltage

ADDITIONAL ALARM FEATURES

- 2nd Level Battery High DC Voltage
- 2nd Level Battery Low DC Voltage
- End of Discharge Alarm
- Rectifier High Current Alarm
- Equalize Alarm
- Charger Over-temperature Alarm

Alarms noted above default values are disabled; these alarms, when required, must be specified on the order.



ARR-M 24VDC PRODUCT RATINGS (*)

Charger Model (F - Filtered Output)	Output Current (Amps)	Input Volts / Input Current			Shipping Weight	Heat Loss		Charger Enclosure (Standard)	Charger Cabinet Size			Remote Transformer				
												KVA >=	Cabinet Size			Weight
		208	240	480	Lbs	Btu	KW		H	W	D		H	W	D	Lbs
ARR-M02425F	25	3.1	2.7	1.4	143	529	0.16	ARRM400	30"	21"	15"	N/A				
ARR-M02430F	30	3.7	3.2	1.6	150	623	0.18					N/A				
ARR-M02440F	40	5.0	4.3	2.2	242	810	0.24	ARRM500	39"	24"	20"	N/A				
ARR-M02450F	50	6.2	5.4	2.7	287	998	0.29					N/A				
ARR-M02475F	75	9.4	8.1	4.0	373	1467	0.43					N/A				
ARR-M024100F	100	12.5	10.8	5.4	430	1936	0.57	ARRM650	51"	24"	20"	N/A				
ARR-M024125F	125	15.6	13.5	6.8	441	2406	0.7	ARRM700	60"	36"	25"	N/A				
ARR-M024150F	150	18.7	16.2	8.1	463	2875	0.84					N/A				
ARR-M024200F	200	24.9	21.6	10.8	551	3873	1.14					N/A				
ARR-M024250F	250	31.2	27.0	13.5	617	4811	1.41					N/A				
ARR-M024300F	300	37.4	32.4	16.2	642	5749	1.68					N/A				
ARR-M024400F	400	49.9	43.2	21.6	782	7746	2.27					15	22"	20"	13"	259
ARR-M024500F	500	62.4	54.0	27.0	807	9622	2.82					22	25"	23"	16"	255

ARR-M 48VDC PRODUCT RATINGS (*)

Charger Model (F - Filtered Output)	Output Current (Amps)	Input Volts / Input Current			Shipping Weight	Heat Loss		Charger Enclosure (Standard)	Charger Cabinet Size			Remote Transformer				
												KVA >=	Cabinet Size			Weight
		208	240	480	Lbs	Btu	KW		H	W	D		H	W	D	Lbs
ARR-M04825F	25	6.2	5.4	2.7	197	768	0.22	ARRM400	30"	21"	15"	N/A				
ARR-M04830F	30	7.5	6.5	3.2	288	921	0.27	ARRM500	39"	24"	20"	N/A				
ARR-M04840F	40	10.0	8.6	4.3	348	1169	0.34					N/A				
ARR-M04850F	50	12.5	10.8	5.4	380	1476	0.43					N/A				
ARR-M04875F	75	18.8	16.2	8.1	438	2184	0.64	ARRM650	51"	24"	20"	N/A				
ARR-M048100F	100	24.9	21.6	10.8	501	2952	0.86					N/A				
ARR-M048125F	125	31.2	27.0	13.5	517	3719	1.09	ARRM700	60"	36"	25"	N/A				
ARR-M048150F	150	37.4	32.4	16.2	517	4368	1.28					N/A				
ARR-M048200F	200	49.9	43.2	21.6	697	5903	1.73					N/A				
ARR-M048250F	250	62.4	54.0	27.0	747	7438	2.18					N/A				
ARR-M048300F	300	74.8	64.8	32.4	772	8735	2.56					N/A				
ARR-M048400F	400	99.8	86.5	43.2	865	11806	3.46					30	25"	23"	16"	329
ARR-M048500F	500	124.7	108.1	54.0	1097	14638	4.29					45	30"	26"	17"	345

(*) - Contact Applications Engineer for information on product ratings not listed

ARR-M 125VDC PRODUCT RATINGS (*)

Charger Model (F - Filtered Output)	Output Current (Amps)	Input Volts / Input Current			Shipping Weight	Heat Loss		Charger Enclosure (Standard)	Charger Cabinet Size			Remote Transformer				
												KVA >=	Cabinet Size			Weight
		208	240	480	Lbs	Btu	KW		H	W	D		H	W	D	Lbs
ARR-M12525F	25	15.6	13.5	6.8	366	1484	0.44	ARRM500	39"	24"	20"	N/A				
ARR-M12530F	30	18.7	16.2	8.1	388	1817	0.53					N/A				
ARR-M12540F	40	24.9	21.6	10.8	426	2423	0.71					N/A				
ARR-M12550F	50	31.2	27.0	13.5	467	2969	0.87					N/A				
ARR-M12575F	75	46.8	40.5	20.3	622	4453	1.3	ARRM650	51"	24"	20"	N/A				
ARR-M125100F	100	62.4	54.0	27.0	647	5937	1.74					N/A				
ARR-M125125F	125	77.9	67.6	33.8	730	7541	2.21	ARRM700	60"	36"	25"	N/A				
ARR-M125150F	150	93.5	81.1	40.5	780	8906	2.61					N/A				
ARR-M125200F	200	124.7	108.1	54.0	1037	11874	3.48					N/A				
ARR-M125250F	250	155.9	135.1	67.6	1037	14843	4.35					50	36"	30"	20"	536
ARR-M125300F	300	187.1	162.1	81.1	1415	17811	5.22					50	36"	30"	20"	536
ARR-M125400F	400	249.4	216.2	108.1	1425	23749	6.96					75	36"	30"	20"	729
ARR-M125500F	500	311.8	270.2	135.1	1703	29686	8.7					75	36"	30"	20"	729

ARR-M 250VDC PRODUCT RATINGS (*)

Charger Model (F - Filtered Output)	Output Current (Amps)	Input Volts / Input Current			Shipping Weight	Heat Loss		Charger Enclosure (Standard)	Charger Cabinet Size			Remote Transformer				
												KVA >=	Cabinet Size			Weight
		208	240	480	Lbs	Btu	KW		H	W	D		H	W	D	Lbs
ARR-M25025F	25	31.2	27.0	13.5	442	2798	0.82	ARRM500	39"	24"	20"	N/A				
ARR-M25030F	30	37.4	32.4	16.2	597	3310	0.97	ARRM650	51"	24"	20"	N/A				
ARR-M25040F	40	49.9	43.2	21.6	597	4333	1.27					N/A				
ARR-M25050F	50	62.4	54.0	27.0	622	5596	1.64					N/A				
ARR-M25075F	75	93.6	81.1	40.5	755	8155	2.39	ARRM700	60"	36"	25"	N/A				
ARR-M250100F	100	124.7	108.1	54.0	987	10953	3.21					N/A				
ARR-M250125F	125	155.9	135.1	67.6	987	13512	3.96					N/A				
ARR-M250150F	150	187.1	162.1	81.1	1340	16310	4.78					N/A				
ARR-M250200F	200	249.4	216.2	108.1	1400	21667	6.35					75	36"	30"	20"	729
ARR-M250250F	250	311.8	270.2	135.1	1653	27980	8.2					75	36"	30"	20"	729
ARR-M250300F	300	374.1	324.2	162.1	1985	33098	9.7					113	38"	36"	24"	924
ARR-M250400F	400	498.8	432.3	216.2	1985	43334	12.7					150	45"	40"	25"	1449
ARR-M250500F	500	623.6	540.4	270.2	2410	54765	16.05					150	45"	40"	25"	1449

(*) - Contact Applications Engineer for information on product ratings not listed

OPTIONAL FEATURES/EQUIPMENT

- High Capacity AC Breaker
- DC Breaker
- Individual Form C Alarm Contacts:
  - Standard configuration for first five alarms (Rectifier Fail, High DC Volts, Low DC Volts, Ground Fault, AC Fail)
  - Contact Applications Engineer for other alarms available
- Remote Battery Sensing
- Input Monitoring
  - AC Voltage Monitoring
  (Includes High & Low AC Voltage alarm)
  AC Voltage & Current are displayed via the standard front panel LCD
  - AC Current Monitoring (Includes High AC Current Alarm)
  AC Voltage & Current are displayed via the standard front panel LCD
- Metering
- Temperature Compensation
- Blocking Diodes
- Load Sharing
- Ground Fault Lamps with Relays & Test Switch
- Drip Top
- Seismic Enclosure design for selected models
- Remote Communications (Modbus/DNP3)
- 12-Pulse Product Design

Note: Other configurations are available; for your unique requirements, please consult Applications Engineer

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