Battery Chargers - Phase Three Series

Three Stage "Smart" Chargers

Phase Three "Smart" battery charging technology is now available in a wide range of power levels, allowing you to select the right size, features and flexibility you require for virtually any application from small recreational craft to large live-aboards, workboats and other commercial vessels. These chargers interact with batteries to put them through the optimum three stage charge process which provides for fastest recovery and ideal conditioning, maximizing battery performance and extending battery life.

A selector switch adjusts output voltage to adapt for gel-cell/flooded lead-acid/AGM battery types. An optional temperature compensation sensor also adjusts output for ideal voltage based on changes in the batteries' ambient temperature. All models are housed in a rugged stainless steel case with a durable white powder coat finish, and the internal circuitry is polyurethane coated for maximum corrosion resistance.

Features

- "Smart" circuitry provides three stage charging—bulk, absorption, float.
- Wide model range covers battery system ratings from 14-950 amp-hours
- Gel-Cell/Flooded Lead-acid/AGM battery type switch selects optimum charge/float voltages.
- Multiple isolated output banks; ammeter indicates total output current. (*except PT-7*)
- Optional sensor adjusts output voltage based on battery temperature. (*except PT-7*)
- Current limiting-prevents damage from overloading.
- Charger status clearly displayed with L.E.D. and/or audible indicators or optional remote panel.
- Use as a power supply; can power loads without a battery in line.
- Built to last—rugged stainless steel case with a durable white powder coat finish with an optional drip shield and marinized internal circuitry.
- Numerous Safety and EMC Compliances
- Two year parts and labor warranty

Models

12 Volt	24 Volt	32 Volt
PT-7	PT-24-8W	PT-32-25W
PT-14W	PT-24-13W	
PT-25W	PT-24-20W	
PT-40W	PT-24-45U	
PT-80	PT-24-60W	
	PT-24-95U	

See next page for detailed specifications.

Optional Accessories

Remote Indicator Panel, Model: RP (Not available for all models - refer to Specifications on following page)

DC Energy Monitor, reads Volts, Amps, Amp Hours (See page 20 for details)

Temperature Compensation Sensor, Model: TCS-12/24 shown (see next page for applicable sensor depending on charger model)

Phase Three Monitor/Control Unit For ABS Installation

This unit, when used in conjunction with certain PT Chargers* creates a system which is fully compliant with American Bureau of Shipping (ABS) Battery Charging standards for commercial installations

** For use with all models except PT-7, PT-24-60W, PT-24-95U, and PT-32-25.*

Incorporates

- Digital readout of float voltage to 1/10th volt
- Output float voltage adjustment pot; permits fine tuning from -4% to +5%
- AC circuit breaker; provides overcurrent protection and manual disconnect
- AC power ON indicator light
- 10' wiring harness for easy connection of PT Series charger

Model: PT-MCU
Size (HxWxD): 8.7"x4.6"x5.5"
Weight: 3.5 lbs.

NEWMAR

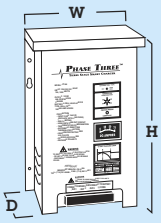
DC Power Onboard

Battery Chargers - Phase Three Series

Specifications

	12 Volt Models					24 Volt Models						32 Volt
	PT-7	PT-14W	PT-25W	PT-40W	PT-80	PT-24-8W	PT-24-13W	PT-24-20W	PT-24-45U	PT-24-60W	PT-24-95U	PT-32-25W
Input VAC (50-60 Hz.)	88-132 or 176-264	85-264	90-132 or 180-264	85-135 or 170-270	90-264	85-264	90-132 or 180-264	85-135 or 170-270	90-264	207-253	90-264	104-126
Input Amps @ Full Load												
@ 115 VAC	2	2.8	6.5	8.5	12	2.8	6.5	8.5	12	NA	26	15
@ 230 VAC	1	1.4	4	4.3	7	1.4	4	4.3	7	13	14	N/A
P.F. Rating	>.65	.93@230V .98@115V	.7	.7	.95@230V .98@115V	.93@230V .98@115V	.7	.7	.95@230V .98@115V	.7	.95@230V .98@115V	.7
Max Output Amps	7	14	25	40	80	8	13	20	45	60	95	25
Output Banks	2	3	3	3	3	3	3	3	3	3	3	3
Battery Capacity (Amp-Hours)	14-70	28-140	50-250	80-400	160-800	16-80	26-130	40-200	90-450	120-600	180-950	50-250
Operating Temp. Rating Reference	T-1	T-2	T-4	T-5	T-7	T-2	T-3	T-5	T-8	T-6	T-8	T-6
Case Size Ref.	A-1	A-2	A-2	A-3	A-5	A-2	A-2	A-3	A-5	A-6	A-6	A-4
Weight; Lbs./Kg.	3.2/1.5	8/4	8.2/4	12/6	15.2/7	8/4	8.2/4	12/6	12.2/6	24.1/11	24.5/11	12.2/6
Optional Temp. Sensor Model	N/A	TCS-12/24	TCS-12/24	TCS-12/24	TCS-12/24	TCS-12/24	TCS-12/24	TCS-12/24	TCS-12/24	TP	TCS-12/24	TP
Remote Panel Model	N/A	RP	RP	RP	RP	RP	RP	RP	RP	N/A	RP	N/A
Equalize Option	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Output Indicator Ref.	M-1	M-3	M-3	M-3	M-3	M-3	M-3	M-3	M-3	M-2	M-3	M-2
Compliance Ref.	CG, CE	CG, CE	CG	CG, CE	CE	CG, CE	CG	CG, CE	EN, CE	EN, CE	EN, CE	EN, CE

Case Size:



	Inches			Centimeters		
Ref	H	W	D	H	W	D
A-1	10.5	5.0	2.8	26.7	12.7	7.1
A-2	12.5	7.7	4.3	31.8	19.6	10.9
A-3	13.85*	9.5	4.8*	35.2*	24.1	12.2*
A-4	13.8[A]	9.8	5[A]	35[A]	24.9	12.7[A]
A-5	14.8[B]	9.6	5.6[B]	37.6[B]	24.4	14.2[B]
A-6	17.5[C]	12	7.2[C]	44.5[C]	30.5	18.3[C]

** Add .75" (1.9 cm) to height and 1.35" (3.4 cm) to depth*
A *Add 1.27" (3.2 cm) to height and 1.1" (2.8 cm) to depth*
B *Add 1" (2.54 cm) to height and .5" (1.27 cm) to depth*
C *Add 2" (5.08 cm) to height and 1" (2.54 cm) to depth*

Compliance References*:

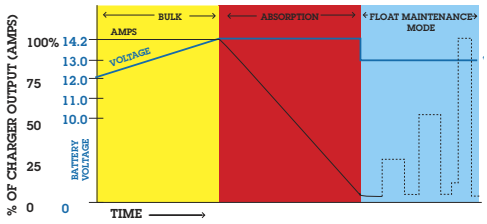
See matrix for applicable models
CG USCG CFR 183.410 (Ignition protected)
EN EN 60335-1, EN 60335-2-29

CE Carries the CE Mark
* Numerous other Safety and EMC compliances may also apply. Contact factory if further compliance information is required.

Output Indicator References:

M-1 Charge/Float L.E.D.
M-2 Total output ammeter and charger status L.E.D.'s/Alarms
M-3 Total output ammeter and power-on L.E.D.

Typical Charge Curve



Temperature Rating References:

T-1 -10°C to +45°C; Derate linearly from 100% @ 0°C to 80% @ -10°C
T-2 -10°C to +60°C; Derate linearly from 100% @ 40°C to 60% @ 60°C
T-3 -10°C to +60°C; Derate linearly from 100% @ 50°C to 60% @ 60°C
T-4 -10°C to +60°C; Derate linearly from 100% @ 40°C to 60% @ 60°C
T-5 -40°C to +60°C; Derate linearly from 100% @ 50°C to 75% @ 60°C
T-6 -20°C to +50°C; Full output
T-7 -20°C to +70°C; Derate linearly from 100% @ 45°C to 50% @ 70°C
T-8 -20°C to +70°C; Derate linearly from 100% @ 50°C to 50% @ 70°C

Nominal Output Voltages at Gel/Flooded Switch Settings

(without Temperature Compensation option installed or at 22.2°C (72°F) with Temperature Compensation option installed.)

	12 Volt Models		24 Volt Models		32 Volt Model	
Setting	Charge @ 50 % load	Float @ .5 amp load	Charge @ 50 % load	Float @ .5 amp load	Charge @ 50 % load	Float @ .5 amp load
Gel-Cell	14.0 VDC	13.6 VDC	28.0 VDC	27.2 VDC	37.3	36.2
Flooded/AGM	14.2 VDC	13.4 VDC	28.4 VDC	26.8 VDC	37.8	35.7

Temperature Compensation: - 5 mV per cell per °C. Sensor supplied with 25' cable (40' cable optional) and plug-in connector

Protection (all models): Input/Output Fuses, Current Limiting, Thermal Protection, Forced Air Cooling, Drip Shield

Remote Panel, Model RP: LED's indicate charger output stage. Manual reset button reinitializes three stage charge cycle. Supplied with 25' cable and plug-in connector. Panel dimensions: 3" H x 4.75" W

NEWMAR®

DC Power Onboard

A Battery Charging System with Redundant, Easily Replaced Charge Modules Providing High Reliability and Serviceability

Reliability

- Redundant, independent, charger modules increase reliability – a malfunction of one does not disable the charging system; remaining modules continue to operate.

Serviceability

- Module change-out takes only minutes, while the system continues to operate
- Technical personnel not required
- No need to remove the charger case from the boat or disconnect any wiring
- No inconvenience of power interruption to the boat

Features

- Three stage "smart" charging; bulk, absorption, float
- Battery type selector switch; gel-cell, lead-acid, AGM
- Temperature compensated output option
- Numerous diagnostic and system status indicators
- 12 Volt; 33-100 amps or 24 Volt; 22-67 amps
- "Universal" input of 90-264 VAC, 50-60 Hz.–can be used anywhere in the world
- Powder coated stainless steel case

The Phase Three Modular (PTM) Concept

Super yachts and commercial vessels have complex electrical systems that support equipment essential to safe operation. These boats are frequently in transit or in remote locations where repair/service is not readily available. Down-time can be very costly and severely impact sailing schedules.

Recognizing that all equipment has a finite service life and random component failure can occur at any time, system reliability can be improved by reducing the number of single points of failure, thus diminishing the impact of a solitary fault on the overall system. The PTM series applies this "fault-tolerant" concept to battery chargers, by using multiple independent charger modules within the unit.

The PTM consists of a case which serves as connection point to AC input and battery bank output, as well as three front-facing power bays, each accommodating a 550 watt charger module which slides and locks in place. If a module fault occurs, a front panel indicator is activated and the system continues operating.

Captains and owners will appreciate this system approach to reliability. A dead charger and dead batteries can disable a vessel, but with the PTM redundant charging system a fault in one of the modules is easily identified and it can be quickly replaced with an on-hand spare or an exchange unit from the factory, while the charging system continues to operate.

Battery Chargers - Phase Three Modular

The Phase Three Modular (PTM) Series is a battery charging system consisting of a wall mount case, which serves as a connection point for AC input and battery bank output that accommodate up to three charging modules which slide and lock into front access power bays. Its redundant charger modules increase reliability, as the system remains operational in the event of a charger module fault. The system is easily and quickly restored to full output by simple module replacement.

The system features three stage charging for rapid recharge and optimal battery life. See pages 2 & 3 for a complete description of the three stage charging process.

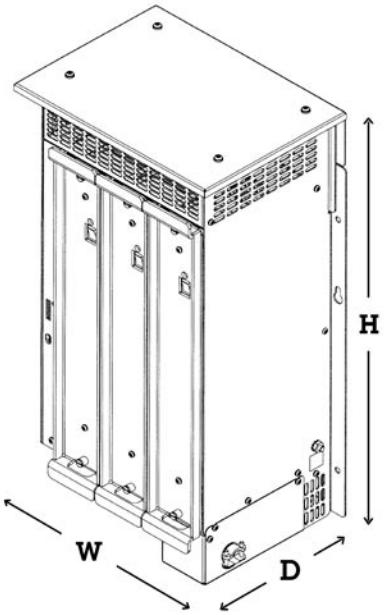
Specifications

System Model	Modules Installed*	Max Output Amps	Max Input Amps @ 115/230 VAC
PTMS-12-100	3	100 @ 12 V	18/9
PTMS-24-67	3	67 @ 24 V	18/9

General System Specifications

Input Voltage/Frequency: 90-264 VAC, 47-63 Hz, single phase; derate linearly from 100% output @ 105 VAC to 80% output @ 90 VAC
Power Factor: .96-.99
Efficiency: 85% typical
Nominal Charge/Float Voltages: Refer to chart on page 3
Temperature Compensation (Option): - 5 mV per cell per °C (typical)
Temperature Rating: 0-60° C; derate linearly from 100% output @ 50° C to 80% output @ 60° C
Recommended Battery Type/Capacity: Gel-Cell, Flooded or Sealed Lead-Acid;
12 Volt Systems: 6 Cell, 80-400 A-H (per installed module); 240-1200 A-H (per system)
24 Volt Systems: 12 Cell, 40-200 A-H (per installed module); 120-600 A-H (per system)
Output Battery Banks: 3
Module Bays: 3*
Status Indicators: Output OK, No Output, Check System, Battery Too Hot, Total Output Bar Graph, Output Voltage Test Points, Contacts for Optional Remote Alarm
Case Material: Powder Coated Stainless Steel
Case Size: Refer to diagram at right
Weight: Empty: 16 lbs/7.3 kg. - With three modules installed: 34 lbs/15.5 kg.

** Note: Charge modules are shipped in the same carton as the PTM case and are then placed in position by the installer.*



Individual Module Specifications

Models: PTM -12-33 (12 volt); PTM-24-22 (24 volt)
Input Voltage/Frequency: 90-264 VAC; 47-63 Hz; derate linearly from 100% output @ 105 VAC to 80% output @ 90 VAC
Input Current: 3 amps @ 230VAC; 6 amps @ 115 VAC
Power Factor: .96-.99
Efficiency: 85% typical
Protection Features: Input Fuse, Output Fuse, Current Limiting, Over Voltage Protection, Cooling Fan, Automatic Thermal Shutdown/Recovery
Compliances:
CE Mark, UL Recognized; E183223, Level 3
Safety: EN60950-1 USA, Canada, Europe
EMI Radiated and Conducted: FCC Part 15 Level A; EN55022 Class A
Status Indicators: Output OK/FAULT
Weight: 6 lbs.
Output Current:
PTM-12-33: 33 amps max
PTM-24-22: 22.5 amps max in Bulk Phase;
20 amps max in Absorption/Float Phases

Case Size

Inches			Centimeters		
H	W	D	H	W	D
20.9	10.9	8.8	53.1	27.7	22.4

Optional

Temperature Compensation Sensor - Model TCS-12/24: See pages 2 &3 for details

Battery Chargers - ABC Series

ABC 12-25

ABC 12-8

ABC Series

The ABC Series chargers have been in the Newmar line for 30 years. They utilize time tested SCR charging circuitry, individually sensing and regulating each of 2 isolated battery banks, allowing the user to leave the charger operating indefinitely, even under no-load conditions without fear of overcharging. These chargers are ideal for vessels or vehicles which have an intermittent demand for battery power.

(For battery systems which require high continuous output, see our Phase Three Chargers on pages 2-3)

These chargers are housed in a rugged, black anodized aluminum, heat-sink case which extracts heat without introducing dust and moisture to the inside of the unit.

The rugged and reliable ABC charger is employed in hostile environments throughout the world in recreation and commercial marine applications, off-shore oil platforms, in mining equipment, emergency service vehicles and rugged off-road applications.

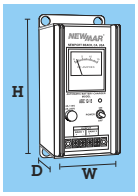
They feature a total output ammeter, on-off power switch, power "on" indicator light, 115/230 VAC input voltage selector switch, factory installed AC power cord with molded plug and shock-resistant rubber mounting grommets. Circuit boards are polyurethane conformal coated for corrosion resistance and all are protected against overheating by an automatically resetting thermal switch.

Features

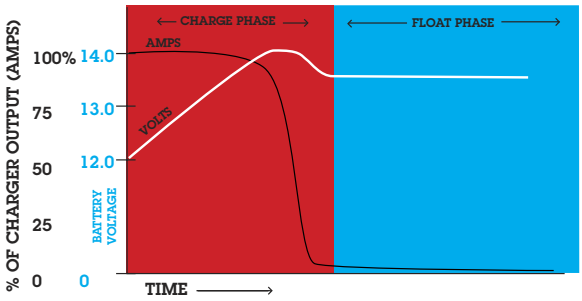
- Total output ammeter
- Dual independently regulated output banks
- On-off switch and power "on" indicator light
- Vibration absorbing mounting grommets
- Anodized aluminum case
- 115/230 VAC input selector switch
- Auto-reset thermal breaker
- Conformal coating of circuit board

Specifications

Model	Input	Amps @ F. L.	Output Volts	Banks	Amps	Inches H	W	D	Centimeters H	W	D	Weight (Lbs)	(Kg)
ABC 12-8	105-125 VAC or 210-250 VAC 50-60Hz	1.5/.75	12	2	8	8.0	6.0	4.2	20.3	15.2	10.6	9	4.1
ABC 12-25		5/2.5	12	2	25	11.9	4.7	6.2	30.2	11.9	15.8	14	6.4



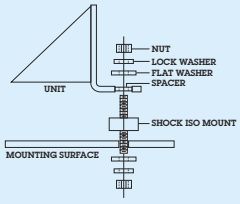
Typical Charge Curves ABC Series



Duty Cycle Ratings: Rated Charging Output 20 min., derate to 50% for continuous output

Operating Temperature: 0-40°C

Float Voltage: 13.4 VDC



Option: Extreme Vibration Mounting Kit

The Extreme Vibration Mounting Kit is available to protect NEWMAR power converters from the extreme stresses of shock and vibration when mounted on high–vibration vehicles.

The kit (pictured here) replaces the standard vibration kit provided with the unit and fits into the unit's mounting flange to act as a "super shock absorber" for electronics in high-vibe applications. It is available to fit all NEWMAR units from 2 to 70 lbs. Specify KIT–L for units which weigh 2–15 lbs. and Kit–H for units which weigh 16-70 lbs.