

## Phase Three Battery 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. **Phase Three** 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 or flooded/AGM lead-acid batteries. 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, and the internal circuitry is polyurethane coated for maximum corrosion resistance.



### Product Features

#### • Charge Characteristics

- ▶ 3 phase 'smart' charging: bulk, absorption, float.
- ▶ Internal terminals for optional equalization timer connection.
- ▶ Lead-acid/gel cell selector switch allows user to set optimum charge and float voltages based on battery type.
- ▶ Temperature compensation adjusts output voltage based on battery temperature via remote sensor (optional).
- ▶ High charge rate controlled by 8 hour timer and current sensing circuit, switching to float rate even if there is a high continuous demand on any battery bank, preventing an overcharging condition.
- ▶ Charge cycle timer is initialized when AC power is applied.
- ▶ Charges battery and powers load simultaneously.
- ▶ Multi-battery output, charges 3 banks on demand.

#### • Circuit Characteristics

- ▶ Conservative circuit design, switching semiconductors selected to withstand over 200% of nominal power level.
- ▶ Continuous duty rated to 50° C, with automatic high temperature power reduction.
- ▶ Operates on 115/230 VAC 50-60 Hz. Accepts wide variation on input, produces full output from utility or generator AC input.
- ▶ Fully functional as power supply without battery connected, well regulated stand alone power source if batteries fail.
- ▶ Low EMI/RFI emission, compatible with on-board electronics.
- ▶ Units may be wired in parallel for high power capability.

#### • Indicators/Monitors

- ▶ Ammeter reads full charge current.
- ▶ Remote panel (optional) indicates output condition and allows manual reset of charge phase.
- ▶ Remote meter (optional) digitally displays battery voltage up to 5 banks.

#### • Protection

- ▶ Stainless steel case with integral drip shield.
- ▶ Current limited won't overload when charging dead batteries.
- ▶ Variable speed thermally controlled fan.
- ▶ Automatic high temperature power reduction above 50° C.
- ▶ Circuit board polyurethane conformal coated for use in marine environments.
- ▶ Timer limits absorption charge interval to 8 hours, preventing overcharge.

#### • Certifications

- ▶ Ignition protected per USCG CFR 183.410.
- ▶ CE, UL, ABYC, FCC.

## Model Selection Guide

12 Volt Models					
	PT-7	PT-14	PT-25	PT-40	PT-70A
<b>Input VAC (50-60 Hz.)</b>	88-132 or 176-264	85-264	90-132 or 180-264	85-135 or 170-270	90-264
<b>Input Amps @ Full Load</b>					
<b>@115 VAC Input</b>	2	2.8	6.5	8.5	12
<b>@ 230 VAC Input</b>	1	1.4	4	4.3	6
<b>P.F. Rating</b>	>.65	.95@230V .98@115V	.7	.7	.95@230V .98@115V
<b>Max Output Amps</b>					
<b>@ 115 VAC Input</b>	7	14	25	40	64
<b>@ 230 VAC Input</b>	7	14	25	40	70
<b>Output Banks</b>	2	3	3	3	3
<b>Battery Capacity (Amp Hours)</b>	14-70	28-140	50-250	80-400	140-700
<b>Operating Temp. Rating Ref.</b>	T-2	T-2	T-2	T-1	T-2
<b>Dimensions</b>	A-1	A-2	A-2	A-3	A-5
<b>Weight; Lbs/Kg.</b>	3.2/1.5	8/3.6	8.2/3.7	12/5.5	15.2/6.9
<b>Operational Temp. Sensor Model</b>	N/A	TCS-12/24	TCS-12/24	TCS-12/24	TCS-12/24
<b>Remote Panel Model</b>	N/A	RP	RP	RP	RP
<b>Output Indicator Ref.</b>	M-2	M-1	M-1	M-1	M-1
<b>Compliance Reference</b>	CG, CE	CG, CE	CG	UL, CG, CE	CE

24 Volt Models						
	PT-24-8	PT-24-13	PT-24-20	PT-24-40	PT-24-45F	PT-24-95F
<b>Input VAC (50-60 Hz.)</b>	85-264	90-132 or 180-264	85-135 or 170-270	90-264	207-253	207-253
<b>Input Amps @ Full Load</b>						
<b>@115 VAC Input</b>	2.8	6.5	8.5	12	N/A	N/A
<b>@ 230 VAC Input</b>	1.4	4	4.3	6	8	17
<b>P.F. Rating</b>	.95@230V .98@115V	.7	.7	.95@230V .98@115V	.7	.7
<b>Max Output Amps</b>						
<b>@ 115 VAC Input</b>	8	13	20	37	N/A	N/A
<b>@ 230 VAC Input</b>	8	13	20	40	45	95
<b>Output Banks</b>	3	3	3	3	3	3
<b>Battery Capacity (Amp Hours)</b>	16-80	26-130	40-200	80-400	90-450	180-950
<b>Operating Temp. Rating Ref.</b>	T-2	T-2	T-1	T-2	T-3	T-3
<b>Dimensions</b>	A-2	A-2	A-3	A-5	A-4	A-6
<b>Weight; Lbs/Kg.</b>	8/3.6	8.2/3.7	12/5.5	15.2/6.9	12.2/5.6	34.0/15.4
<b>Operational Temp. Sensor Model</b>	TCS-12/24	TCS-12/24	TCS-12/24	TCS-12/24	TP	TP
<b>Remote Panel Model</b>	RP	RP	RP	RP	N/A	N/A
<b>Output Indicator Ref.</b>	M-1	M-1	M-1	M-1	M-3	M-3
<b>Compliance Reference</b>	CG, CE	CG	UL, CG, CE	CE	EN	EN, CE

**Case Size Reference**

Ref	Inches			Centimeters		
	Height	Width	Depth	Height	Width	Depth
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	14.1	9.5	4.0	35.8	24.1	10.2
A-4	15.5	9.7	5.0	39.4	24.6	12.7
A-5	15.7	9.8	6.7	39.9	24.9	17.0
A-6	19.5	12.2	8.2	49.5	40.0	20.8

**Compliance References\***

<b>UL</b>	UL 1950
<b>CG</b>	USCG CFR 183.410
<b>EN</b>	EN 60335-1, EN 60335-2-29
<b>CE</b>	Carries the CE Mark

\* Numerous other Safety and EMC compliances may also apply.

**Temperature Rating References:**

<b>T-1</b>	25°C to +60°C; Derate linearly from 100% @ 50°C to 75% @ 60°C
<b>T-2</b>	10°C to +60°C; Derate linearly from 100% @ 50°C to 80% @ 60°C
<b>T-3</b>	20°C to +50°C

**Nominal Output Voltages at Gel/Flooded Switch Settings**

Settings	12 Volt Models		24 Volt Models	
	Charge @ 50% load	Float @ .5 amp load	Charge @ 50% load	Float @ .5 amp load
<b>Gel-Cell</b>	14.0 VDC	13.6 VDC	28.0 VDC	27.2 VDC
<b>Flooded/AGM</b>	14.2 VDC	13.4 VDC	28.4 VDC	26.8 VDC

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