

# Battery Chargers - Phase Three Modular

## Charger Modules "Plug-and Play" Providing: Flexibility ■ Reliability ■ Serviceability

### Phase Three Modular (PTM) Concept

Emergency Vehicles are held to the highest degree of reliability and service performance, thus redundancy within systems builds in tolerance of points of failure without impacting the operation of the vehicle. This fault tolerance concept is employed in the PTM series chargers.

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 the "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 on the remaining modules.

Emergency personnel and vehicle service shops will both appreciate this system approach to DC system reliability. A dead charger can cause dead batteries and disable an emergency vehicle just when it is needed most. 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, all while the charging system continues to operate on the two remaining like modules.

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.



### 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 20

**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, Low Output Voltage, Check System/Module Fault, Battery Hot/Reduced Output, Total Output Current Bar Graph, Output Voltage Test Points

**Alarm Contacts:** Check System; Output OK/Fail

**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.

### Options

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

### Specifications

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

### Individual Module Specifications

**Models:** PTM -12-33 (12 volt); PTM-24-22 (24 volt)

**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 (Green)/FAULT (Red)

**Weight:** 6 lbs.

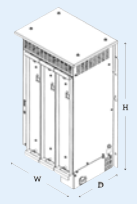
**Output Current:** PTM-12-33: 33 amps max

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



DC Power Onboard - Emergency & Specialty Vehicles