

# APCL-10 FLASHCHANGER®

## Integrated Flasher/Lampchanger Unit



Optimized to operate high wattage lamps and configured for enhanced communications capability for monitoring and control, the APCL-10 FLASHCHANGER® packs an array of capabilities into one compact, lightweight and highly reliable package. Occupying the space of a typical lampchanger, this unit is optimized for operation in rotating beacons, medium intensity aviation obstruction lights, bridge lights, minor landfall lights, and monitored buoy lights. It frees up the space in the base of most lanterns (normally occupied by a typical flasher) for housing power supplies, batteries, battery chargers, monitoring or control electronics, radios, etc.

### UNMATCHED VERSATILITY

The APCL-10 provides a wide array of advanced capabilities:

- Field selection of communications addresses and flash rhythms.
- Pulse-width modulated voltage regulation system.
- Photocell Daylight Control.
- RS-485/RS-232 Communications Interface.
- Highly Reliable Motorized Lampchanging.
- Synchronization Terminal and Lampout Flag and Secondary Optic Control Terminal.
- Electrical and Optical Monitoring of Lamp.
- Manual or Radio Actuated Field Self-Test Function

### STATE-OF-THE-ART VOLTAGE REGULATION

The heart of the APCL-10 is a microprocessor which controls the pulse width modulated voltage regulation system. This system relies on switched field effect transistors (FET) to chop the direct current input voltage into a square wave pulse train. This system has two outstanding benefits:

- a. The life of incandescent signal lamps is, typically, doubled due to reduced notching of the filaments.
- b. Regulation losses are less than 3% regardless of the input/output voltage ratio. 24-Volt systems can efficiently power 12 -Volt lamps reducing the cable sizes required.

### SUPERIOR ENVIRONMENTAL PROTECTION

The APCL-10 features several new environmental protection enhancements including high current electrical contacts coated with corrosion inhibitor, double painted circuit boards, auxiliary motor cover, shafts coated with high temperature lithium grease and variable geometry double-wiper contacts to minimize contact resistance. Unit operates over the temperature range of -40C to +70C, with 0-100% relative humidity

and after four-day high-temperature salt fog test!

Heirs to the original 1928 patent for lampchangers and the pioneer in the electrification of aids to navigation lighting, Automatic Power manufactures all its products to the quality and reliability standards demanded by the marine environment. Staff design engineers are able to adjust APCL-10 specifications to specific customer needs.



FRONT



BACK

## SPECIFICATIONS

- **Input Voltage:** 5-30 Volts DC.
- **Output Voltage:** Pulse Width Modulated Regulated for voltages 0.2 volts above regulation point. 2% accuracy. 12 Volt and 24 Volt Output Available.
- **Output Current:** 10 Amps maximum. 120 Watt-12 Volt and 250 Watt-24 Volt Lamps.
- **Lampchanging:** Six-place unit features a microprocessor-controlled stepper motor accurate to fractions of millimeters. If a lamp fails, it provides shock-free lamp replacement. If all lamps have failed, automatic lamp recheck and autorotation limit after each photocell transition.
- **Power Consumption:** 5 milliamps flash or idle - day and/or night.
- **Reverse Polarity Protected:** Lamp burns fixed as indicator.
- **Daylight Control:** Resistance set at: 1700 ohms - switch on; 1200 ohms - switch off.
- **Flash Rhythm:** Factory programmed to customer requirements. Field Selectable by hex switches.
- **Serviceability:** Large, screw-type, nickel-plated brass terminals.
- **Environmental:** Operating temperature -40 C to 85 C. Relative Humidity 0-100 percent. High Temperature Salt Fog. High Temperature Cube and Double Wiper Contact.
- **Monitored via RS-232/485 Interface (optional):** System Voltage, Number of Good Lamps Remaining, Photocell Status, Flash Rhythm, Flash Failure (Optically Verified), Flash Code Switch Setting.
- **Control via RS-232/485 Interface (optional):** Remote On/Off, Flash Rhythm, Count of Good Lamps Remaining, Flash Synchronization, Lamp Voltage.
- **Communications Addressing:** Individual Addresses of Flashchangers are field selectable and adjustable. May be set or changed via hexadecimal switch settings.
- **Communications Interface:** Optional RS-485 Interface/Terminal Built into unit. The RS-485 interface allows multiple APCL-10s to be monitored/controlled through as much as 7000 meters of a single, twisted shielded cable to an IBM compatible computer. Programmed with API software, the computer can exercise the

- FLASHCHANGER remotely to determine the number of good lamps remaining, etc. This feature relieves maintenance personnel from having to climb towers or bridge structures for routine maintenance checks.
- **Synchronization:** Terminal provided to allow flashing of multiple lamps in unison via hardware or UNIFLASH-II wireless synchronization system. Sync output backward compatible with Automatic Power Inc. products produced since 1982. Compatible with selected products from other manufacturers.
  - **Low Voltage Disconnect (optional):** Unit may be programmed with a low voltage disconnect to prevent complete discharge of the battery. Customer may specify disconnect and reconnect voltage.
  - **Self Test Feature:** Depressing test button on side of unit or closing contact by radio control initiates self test routine which starts by burning operating lamp fixed for predetermined period to assist in voltage measurements. Fixed burn is followed by the FLASHCHANGER® rotating to each lamp position and flashing in sequence the number of good lamps it has encountered to that point. eg. one flash, two flashes, etc. as each good lamp is encountered. After all lamps have been sampled, the unit returns to normal operations. A limit of three self test routines are allowed each day. Specialized self test routines may be programmed.
  - **Alarm/Secondary Optic Control:** Terminal provided that posts an open collector monitor/alarm/control for a secondary optic when all lamps have failed on the primary FLASHCHANGER®, or, as an option, when the last good lamp is in the operating position.

FLASHCHANGER® is a registered trademark of Automatic Power, Inc.

## www.automaticpower.com

**Pharos Marine – England**  
Steyning Way, Houndslow  
Middlesex, England TW4 6DL  
Phone: 44-20-8538-1100  
Fax: 44-20-8577-4170  
[sales@pharosmarine.com](mailto:sales@pharosmarine.com)

**AUTOMATIC POWER – HOUSTON  
MAIN OFFICE & FACTORY**  
213 Hutcheson St.  
Houston, TX USA 77003  
P.O Box 230738  
Phone: 713-228-5208  
Fax: 713-228-3717  
[sales@automaticpower.com](mailto:sales@automaticpower.com)

**Pharos Marine – Singapore**  
35 Tannery Road  
05-05 Tannery Block, Singapore  
347740  
Phone: 65-6-747-9325  
Fax: 65-6-746-0478  
[abpharos@singnet.com.sg](mailto:abpharos@singnet.com.sg)

**Automatic Power – West Coast USA**  
26 Pizarro Ave.  
Novato, CA USA 94949  
Phone: 415-382-6296  
Fax: 415-382-6299  
[dolantp@aol.com](mailto:dolantp@aol.com)

**Automatic Power – Gulf Coast USA**  
1340 Westbank Expressway  
Westwego, LA USA 70094  
Phone: 504-347-2384  
Fax: 504-348-2306  
[dcummiskey@automaticpower.com](mailto:dcummiskey@automaticpower.com)

**Automatic Power – East Coast USA**  
204 Parkway Drive  
Williamsburg, VA USA 23183  
Phone: 757-253-2817  
Fax: 757-220-8166  
[APIatlantic@aol.com](mailto:APIatlantic@aol.com)

