



***LaMARCHE***®

**DIGITAL C.A.P. SYSTEMS**  
**(COMBINED ACCESSORY PACKAGES)**

**16E, 16F, 16G, 16H, 16J, 16L, 16P,**  
**16Q, 16T and 16U**

**OPTIONS**

Description:

- ◆ Digital Display, selectable for d.c. voltage, d.c. current (amps), timer mode, and equalize time remaining (hours)
- ◆ Electronic equalize timer with amber light
- ◆ Summary Alarm with / 2 Sets of Form "C" contacts – alarm with high or low voltage one and two, high voltage shutdown or low current. (A.C. power failure and Low current alarm can be disabled when in the calibrate mode)
- ◆ A.C. Green pilot light with 2 sets of form (C) contacts (Except on A97 Models)
- ◆ Low D.C. Voltage Alarm 1 with light and 2 Sets of Form "C" contacts
- ◆ Low D.C. Voltage Alarm 2 with light and 2 Sets of Form "C" contacts
- ◆ High D.C. Voltage Alarm with light and 2 Sets of Form "C" contacts
- ◆ Low D.C. Current Alarm with light and 2 Sets of Form "C" contacts
- ◆ High D.C. Voltage Shutdown with light and 1 Sets of Form "C" contacts
- ◆ Reset pushbutton
- ◆ Equalize / select mode switch

16E - For models A12B and A46 – all the above features.

16F – For models TPCD and CDPD - all the above features – except:  
 Low Voltage 2 used as a Low Voltage Load Disconnect

16G - For model A12B – all the above features except:  
 Low Voltage 2 used as Low Voltage Battery Disconnect  
 Low Voltage 2 has 1 set of Form "C" contacts

ECN/DATE

**CPN 102966**

		16064 – 7/03	15339 – 4/02
	<b>16600 - 12/04</b>	15382 – 5/02	14767 – 7/01

**106 BRADROCK DRIVE**  
**DES PLAINES, IL. 60018-1967**  
**(847) 299-1188**  
**FAX: (847) 299-3061**

ISSUE DATE: 14370 – 3/01

INSTRUCTION DRAWING NUMBER:

P25-**LOPT16SERIES-1**

- 16H - For model PPC – all above features except:  
 Relays for Low Current and Summary only – 2 sets of form (C) contacts for each alarm  
 No High Voltage Shutdown or A.C. power failure relay contacts
- 16J - For models A12B and A97 – all the above features except:  
 Low D.C. voltage 2 light only-no contacts  
 Includes Ground Detection Lights and 1set of Form "C" contacts for Postiive and Negative Alarms
- 16L - For model A12B – All the above features except:  
 Low Voltage 2 used as Low Voltage Load Disconnect  
 Low Voltage 2 has 1 set of Form "C" contacts
- 16P - For model A12B – All the above features except:  
 Summary alarm has 1 set of Form"C" contacts  
 Includes Audible Alarm with Silence Switch
- 16Q – For model A12B – All the above features except:  
 The Low D.C. voltage 2 alarm will disconnect the battery from the load and rectifier at a preset level (1.75Vpc)
- 16T - For models A12B, A87 and A97– All the above features except:  
 Low D.C. voltage 2 light only-no contacts  
 Includes Ground Detection Lights and 1set of Form "C" contacts for Postiive and Negative Alarms  
 Summary Alarm has 1 set of Form "C" contacts  
 Includes Audible Alarm with Silence Switch
- 16U – For model A12B – All the above features except:  
 The Low D.C. voltage 2 – alarm will disconnect the load from the battery and rectifier at a preset level. (1.75Vpc)

The low d.c. volts , low current, high d.c. voltage alarms, the equalize timer mode and equalize time are all adjustable from the front door panel.

**NOTE: See schematic within manuals for customer alarm contacts. All contacts are dry "Form C".** Contact Data:

LOAD	RESISTIVE LOAD (p.f. = 1)
Rated load	0.60va at 120Vac 2A at 30Vdc
Contact material	Ag(Au clad)
Carry current	2A
Max. operating voltage	125Vac 125Vdc
Max. operating current	2A
Max. switching capacity	62.50Va 60W
Min. permissible load	10uA, 10mVdc

## **OPERATION**

Once the proper a.c. input and battery are connected to the system, the digital display will indicate the system output voltage, the DCV "LED" will light. Toggle the equalize/select switch down to the select position and the display will indicate system output amps and its "LED" will light. A third toggle and the time mode will indicate on the display and its "LED" will light. A fourth toggle and the equalize time remaining will indicate on the display.

To check or re-set the alarm settings, hold the equalize/select switch in equalize for approximately five (5) seconds, the low voltage "LED-1" will blink and the display will read the low voltage setting for approximately five (5) seconds, the "LED" will turn off and the high voltage "LED" will turn on, the display will indicate the high voltage alarm setting. The display and "LED" will change every five seconds. The remaining "LED's" are high voltage, low current timer mode and equalize time. After going through one cycle, the display will return to the normal mode. The alarm settings, timer mode, or equalize time can be reset while their function is active (i.e. "LED" is blinking) by using the equalize select mode switch. Pushing the switch to up will raise the setting, while pushing the equalize select mode switch down will lower the setting. NOTE: The cycle must be allowed to complete in order to save any new settings.

To reset the time delay for the relay contacts, hold the Equalize/Select mode switch down for 20 seconds. The alarm LED will blink and the display will indicate the time delay in seconds. Move the Equalize/Select mode switch up to increase the time delay, down to decrease. The alarm LED will switch every 5 seconds.

**Note: All alarm contacts are factory set for 5 seconds except the high voltage contacts they are set for 20 seconds.**

These alarm package are shipped with the following factory settings unless otherwise specified.

Low D.C. voltage (1): 1.98 Vpc Lead-Acid  
Low D.C. voltage (2): 1.98 Vpc Lead-Acid  
High D.C. voltage : 2.45 Vpc Lead-Acid  
High D.C. voltage shutdown (HVSD): 2.5 Vpc Lead-Acid  
Low D.C. current: .5 A  
Timer mode: Mode 0  
Equalize Time: 8 Hours

**Note: When the Low D.C. voltage 2 alarm is used for a battery or load disconnect, the factory setting is 1.75Vpc lead-acid. The battery or load will re-connect at 2.05Vpc lead-acid.**

## **TIMER MODES**

**NOTE: IN ALL MODES, THE UNIT WILL RETURN TO FLOAT IF THE EQUALIZE SWITCH IS PUSHED.**

### MODE 0

DISPLAY indicates P00

This is the standard timer mode. If the "EQUALIZE" switch is pushed the timer will switch the charger into the equalize mode and the equalize "LED" will indicate. The timer will automatically return the charger to the float mode when the equalize cycle is complete.

### MODE 1

DISPLAY indicates P01

This mode of operation automatically starts an equalize cycle every 7 days after. The length of this cycle is again determined by the timer setting. After the equalize period the timer will wait for another 7 days and then restart.

### MODE 2

DISPLAY indicates P02

This mode of operation automatically starts an equalize cycle every 14 days. The length of this cycle is again determined by the timer setting. After the equalize period the timer will wait for another 14 days and then restart.

### MODE 3

DISPLAY indicates P03

This mode of operation automatically starts an equalize cycle every 30 days. The length of this cycle is again determined by the timer setting. After the equalize period the timer will wait for another 30 days and then restart.

### MODE 4

DISPLAY indicates P04

This mode of operation automatically starts an equalize cycle when the d.c. voltage drops below the low voltage setting for 30 seconds or longer. The battery voltage must rise approximately 8% above the low voltage set point.