



## LCM-RO SERIES

Retail Outlet Photo/Time Clock  
Lighting Controller

### DESCRIPTION

The **LCM-RO** photo sensor lighting control systems automatically switches lights in response to changes in natural daylight. The **LCM-RO** consists of a microprocessor controller, Hand/Off/Auto switches, terminal blocks and with 4 and 8 pole 20A lighting contactors all housed in a surface mount enclosure. The **LCM-RO** also comes with an outdoor **CES** sensor.

The standard **LCM-RO** has two outdoor control channels capable of switching groups of exterior sign and advertising lighting separately from site safety and security lighting. Indoor sensors are available for daylight harvesting.

### ADJUSTABILITY/OPERATION

The **LCM-RO** is easily configured for the appropriate lighting level to optimize energy savings. The LCD Screen prompts you to enter photo sensor setpoint limits and lets you override the controller. Lights turn ON at the Low setpoint and Off at the High setpoint with digital precision. The deadband keeps the lights stable during changing conditions.

### CONSTRUCTION

The **LCM-RO** controller has been designed with safety in mind. The processor is located in the low voltage compartment, ensuring safety during adjustment. The low voltage sensor housing meets flame retardant requirements of UL standard 94V-0. The sensor has a weatherproof visored housing. All products are factory tested and pre-calibrated to assure maximum reliability.

The entire assembly is mounted in a surface mount NEMA/EEMAC TYPE 1 enclosure with the high and low voltage components separated by a barrier.

The **LCM-RO** is constructed to ANSI/UL 508 and CAN/CSAC22.2-14M91 standards and each unit carries an Electrical Testing Laboratories label.

### COMMUNICATION

The **LCM-RO** communicates with a PC either through a modem, directly, or any of the other communication options. With the proper options, this system allows remote monitoring of the system and the ability to make remote changes.



### FEATURES

The advantages of using the **LCM-RO** lighting control system are found in stability, versatility, quality and accuracy. The **LCM-RO** offers a complete installation package. Once mounted, the sensor, power, and lighting loads need only to be wired, and the **LCM-RO** is ready to operate.

Other advantages are:

- **Easy adjustment of On and Off set points using front buttons or optional PC software.**
- **Accumulated Run Time Hours are logged.**
- **4 modes of Operation: On & Off Override, Setup (No timers) and Auto (Full program).**
- **Standard 32 circuits, are expandable in groups of 4.**
- **Base system uses single Outdoor linear photodiode sensor calibrated to 300FC. Additional indoor or outdoor photodiode sensors can be calibrated as specified.**
- **Optional time-clock or override switches, switch Off by timer or next event.**
- **Input time delay, prevents intermittent or false switching.**
- **1/2 hr Hold-On-Timer prevents High**



# PLC-MULTIPOINT, INC.

## PHOTO LIGHTING CONTROL & SYSTEMS

### APPLICATION

The LCM-RO is an ideal system for multiple circuit outdoor lighting control where two set points are required. Site and safety lighting is controlled with one channel. Signage is controlled by a second channel. The typical applications, convenience stores, fast food restaurants, gas stations, strip malls, and car dealerships, all have different requirements. For more information on the differences between these applications, contact PLC-Multipoint. Mixed lighting loads (HID and Fluorescent) can be both accomplished in a single unit.

### SPECIFICATION

#### CONTROLLER

Each Controller shall be powered by 120VAC and shall have a 40 character LCD to display current sensor readings, setpoint settings and relay status. The controller shall be enclosed in a NEMA/EEMAC 1 enclosure for surface mounting installation. Front door operators shall include a HAND/OFF/AUTO selector and LEDs to indicate each channel's contactor output.

Each of the two channels shall have a 60 second input time delay that shall keep the controller from responding from transient sensor signals, and a 1/2 hour hold on timer to prevent short cycling of HID fixtures. Individual channel high and low setpoint limits shall be adjustable from controller increment, decrement and pagination navigation keys. The run-time hours of each channel shall be accumulated and displayed and be capable of being reset.

The controller shall have an OFF/ON/SETUP/AUTO mode selection screen, whereby setup bypasses the timing functions and auto enables the full controller algorithm. The display shall indicate the on or off status of each output channel. The program shall be stored in EEPROM. Setpoints, accumulated hours, and operating mode information is stored for 20 days using non-battery capacitive backup.

The relay output shall be capable of 20A current load at 120,277, 347,480, or 600V. Lighting contactors shall be assigned to channel outputs in groups of 4 circuits. The total number of poles shall be expandable to 48.

The controller shall be capable of 24 hour time of day schedule and seven day weekly schedule for each of the output channels. Daylight savings time shall be automatically adjusted.

#### OPTIONS

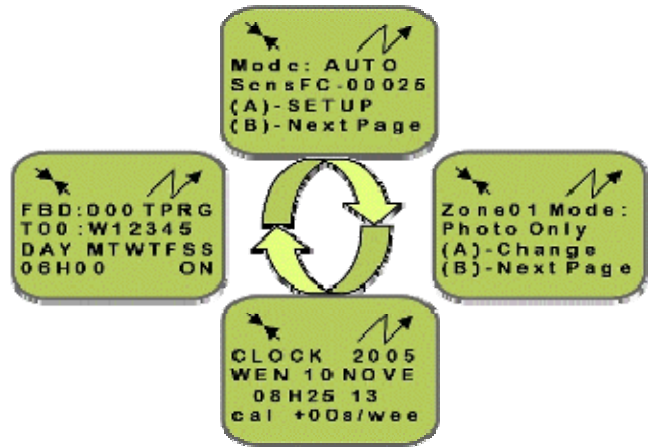
Communication options shall include direct serial RS232 interface to a PC, fiber optic communication, and local multi-drop communication bus.

Output options shall include: contrast lighting output, wiring to contactor poles to terminal block, latching mechanically held contactors, pulsed alternating output, duty cycle output, security night circuits, and warning flash on end of period.

The controller shall be capable of being overridden by momentary switch closure for either a fixed time period, or until the next scheduled event.

The Controller shall be PLC-MULTIPOINT LCM-RO Series.

### LCM-RO Display Screen



#### OUTDOOR PHOTODIODE SENSOR

The Photoelectric device shall be a Class 2, low voltage ambient light sensor designed to interface directly via 18 gauge wire to the controller. The sensor shall supply an analog input signal to the controller proportional to the light measured. The sensitivity adjustment shall be at the control panel enclosure. The sensor housing shall be flame retardant and meet UL 94 HB standards.

The outdoor sensor shall have a hood over the aperture to shield the photodiode from direct sunlight. The outdoor sensor circuitry shall be completely encased in optically clear epoxy resin. The sensor shall mount to a standard threaded 1/2" conduit or fit a 1/2" knockout. The Outdoor sensor shall be calibrated to a range of 300 FC full scale. The Photoelectric sensor device shall be a PLC-MULTIPOINT CES/O sensor.



### LCM-RO TECHNICAL DATA

<b>Input Voltage:</b>	120/277 VAC standard	<b>Hold-ON-Timer:</b>	30-minutes. (Setup mode override)
<b>Deadband:</b>	Adjustable - 0-100% of Sensor Range	<b>Control Inputs:</b>	Photodiode <b>CES</b> Sensor Low voltage switches
<b>Channels:</b>	2 Standard, 4 or more available	<b>Indicators:</b>	Control Outputs displayed on I/O Screen. Door: Red Relay on LED
<b>Input Delay:</b>	Standard - 60 seconds (Setup mode override)	<b>Door Override:</b>	Hand & Off: Bypass Controller Auto: processor control
<b>Output:</b>	32 120V 20A expand in groups of four	<b>Sensor Type:</b>	Compatible with any CES Sensor
<b>Load:</b>	Incandescent, Fluorescent & HID	<b>Sensor Accuracy:</b>	+/-1% at 70F. (21C.) Derated to +/-5% above 120F. or below 0F. (49C. / -18C.)
<b>Enclosure:</b>	NEMA1 - 24"Hx18"Wx6"D	<b>Sensor Temperature:</b>	-13F. to 140F. (-11C to +60C) Contact factory for lower temperature operation.
<b>Control Modes:</b>	Displayed on LCD Mode Screen: <b>OFF:</b> Force lights OFF <b>ON:</b> Force lights ON <b>SETUP:</b> Photo setpoint control - No timers <b>AUTO:</b> Photo sensor control With timers (ON at LOW, OFF at HIGH set points)	<b>Output Range:</b>	0-300 Fc as standard. Consult PLC-Multipoint for other ranges.

DATA SHEET

### LCM-RO PANEL ASSEMBLY

#### ORDERING MODEL

(Insert variables from numbered columns.)

**EXAMPLE: LCM-RO 2-1-2-16-120-1-MAS/O-SEH, ROE2.**

Configures LCM-RO for gas station, with 1 sensor input, 2 outputs with each controlling 16 poles. The control power is 120V in a NEMA 1 enclosure. The options include a heated sensor housings, and a remote override pushbutton.

**LCM-RO A\_\_ - B\_\_ - C\_\_ - D\_\_ - E\_\_ - F\_\_ - G\_\_ - H\_\_.**

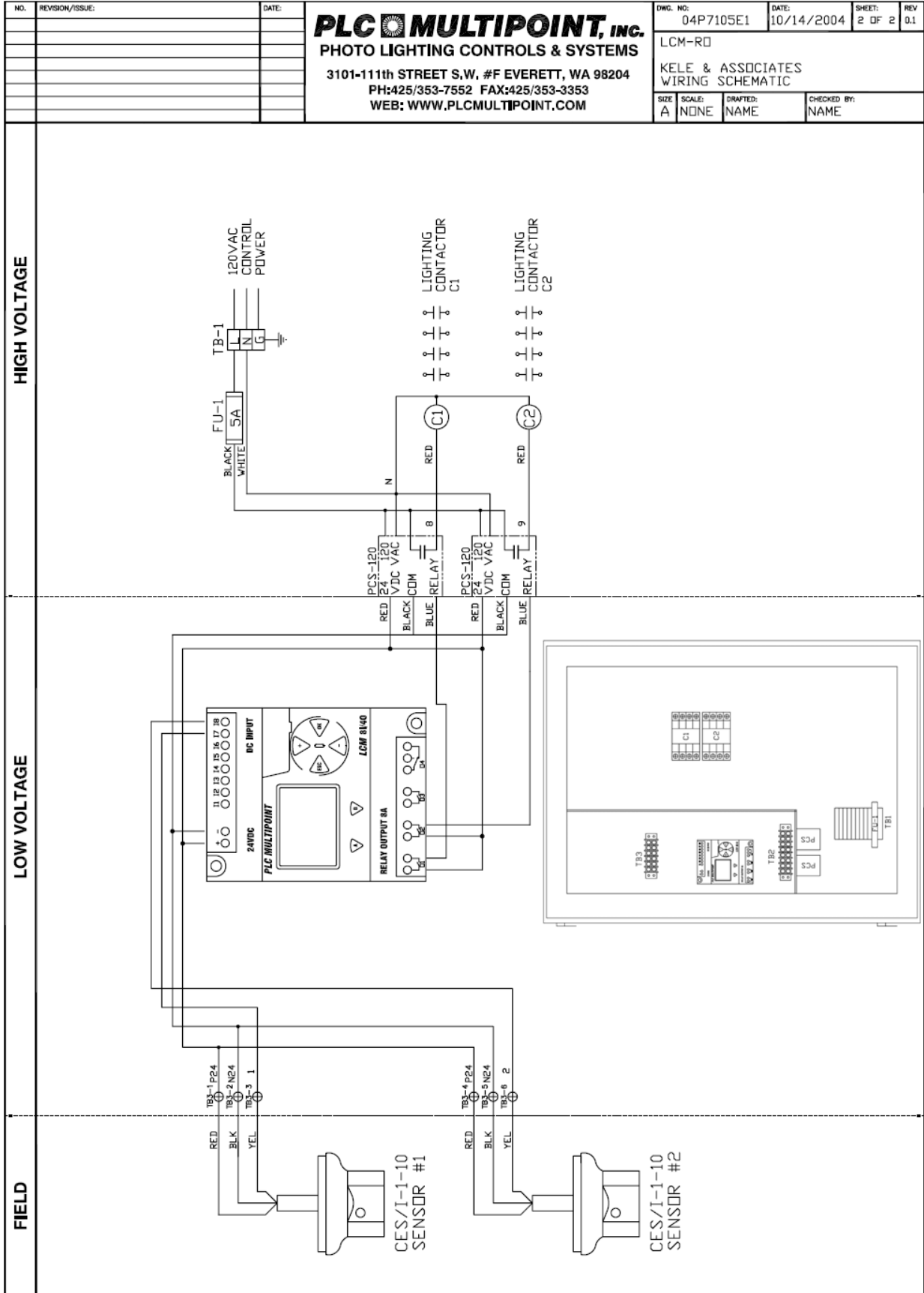
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>
Configuration	Inputs	Zones	Poles/Zone	Volts	Encl. (NEMA)	Sensor	Options
1= Fast Food	1 - 12	1 - 8	4, 8, 12, 16, 20, 24	24VDC	1, 3R, 4X, 12	CES/I	See LCM Option List located at the end of the LCM system product data sheets.
2= Gas Station				120		CES/IL	
3= Strip Mall				277		CES/O	
4= Design & Build				480		CES/A	
				347		CES/S	
				600		MAS/I	
						MAS/O	
						MAS/A	
						MAS/S	
						MSC	
						MSW	
						MSR	
						MSS	
						MSC2	
						MSR2	

Contact us if you need further assistance.



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DATA SHEET