Honeywell

CR7075
Two-Stage Lighting Controller

PRODUCT DATA

FEATURES

- **Light intensity threshold levels field-adjustable by user.**
- **Independent Time of Day (TOD) override inputs.**
- **Optimum start/stop of lighting loads.**
- **Tamper-proof cover.**
- **LED annunciation for power on and relay state.**
- **Wide ambient temperature range.**
- **Up to 1000-foot separation between photocell and controller.**

APPLICATION

The CR7075A Two-Stage Lighting Controller offers on/off sequenced control of two separate lighting banks based on user determined ambient light intensity level via a single sensor. Typical applications include outdoor cosmetic and parking lot lighting in fast food restaurants, retail establishments, supermarkets, banks, and lighted billboards.

Contents

63-2180-1

SPECIFICATIONS

Model: CR7075A1000 Two-Stage Lighting Controller.

Dimensions: See Fig. 1.

Electrical Ratings:
Voltage Input: 120/240 Vac, 50/60 Hz.
Power Consumption: 5 VA Maximum.
Switching: Single-Pole, Double-Throw (SPDT).

Sensor: Cadmium sulfide photocell (C7057A1000), 1000 ft. maximum distance between sensor and controller, shielded wire not required.

Indicators: LED annunciation—power and relay state.

Contact Ratings:

	Voltage (Vac)	
	120	**240**
Full Load	9.8A	4.9A
Locked Rotor	58.8A	29.4A
Pilot Duty	125VA	
Resistive	10A @ 24 Vac	

TOD Inputs: Two independent contact closure inputs. Function is active when contact closure is made between appropriate terminals.

Integrating Time Delay: 30 ±10 seconds.

Ambient Temperature Range: -40 to +140°F (-40 to 60°C).

Humidity: 0 to 95% rh.

Setpoint Range: 2 foot-candles to 80 foot-candles.

Approvals:
Underwriter's Laboratories, Inc. Listed: File No. E87741, Guide No. EOXT.
Canadian Standards Association Listed.

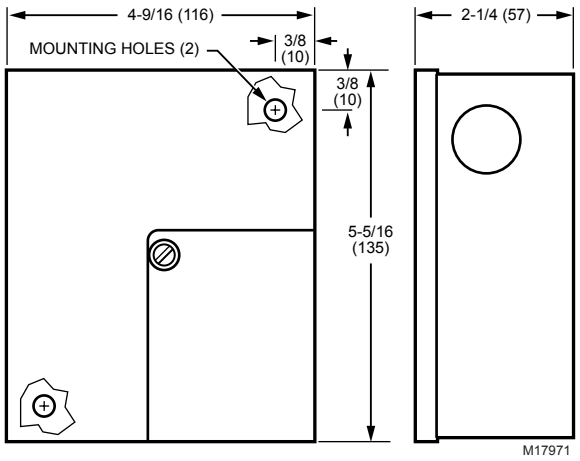

Fig. 1. Approximate CR7075 dimensions in in. (mm).

ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Home and Building Control Sales Office (check white pages of your phone directory).
2. Home and Building Control Customer Relations
   Honeywell, 1885 Douglas Drive North
   Minneapolis, Minnesota 55422-4386 (800) 328-5111

In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Scarborough, Ontario M1V 4Z9.
International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

INSTALLATION

When Installing this Product...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.

⚠ CAUTION

Electrical Shock or Equipment Damage Hazard. Can shock individuals or short equipment circuitry.
Disconnect power supply before installation.

Before Installation

IMPORTANT

Expose the photocell to light for 16 hours.

The photocells develop a hysteresis (or “light memory”) when packed for shipping. Until the photocell has been exposed to bright light for at least 16 hours, light level setpoints will shift.

Location

Locate the cadmium sulfide photocell sensor C7057A1000 (supplied with this controller) so that the lens is exposed to full daylight. (See Fig. 2.)

NOTES:

— Select an area which will not become shaded.
— Mount *only* with light entrance facing horizontally.
— Avoid overexposure to direct east/west sunlight.

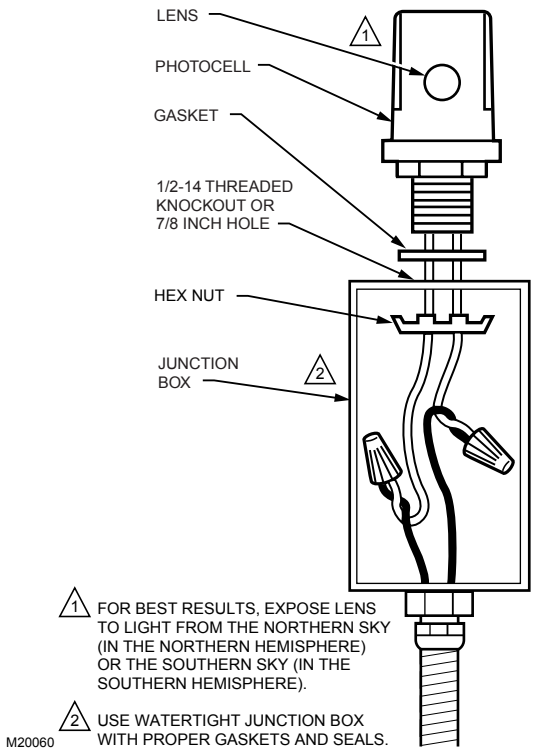

Fig. 2. Vertical mounting configuration.

Mounting

IMPORTANT

Mount the photocell sensor to the top of a watertight, outdoor FS junction box.

1. Use the gasket provided to prevent moisture entry.
2. Screw stem into 1/2-14 threaded knockout.

NOTE: The photocell sensor can be mounted in a 7/8 in. hole (or knockout).

Mount the controller on any convenient interior location:

1. Remove the tamper-proof cover.
2. Mount the controller using the two mounting holes provided in the metal enclosure corners (mounting screws not included).

NOTE: Use controller dimensions in Fig. 1 as a guide.

Wiring

⚠ CAUTION

Electrical Shock or Equipment Damage Hazard. Can shock individuals or short equipment circuitry.
Disconnect power supply before installation.

IMPORTANT

- *All wiring must agree with applicable codes, ordinances and regulations.*
- *When wiring the input power, apply only one source of power to the CR7505A.*
- *With line-voltage loads, the power and load voltage must be the same.*

Refer to chart on the inside of the controller cover or Fig. 3 for locating the power inputs, photocell sensor inputs, TOD and load relay terminals. Refer to Fig. 4 through 7 for typical wiring and application examples.

NOTES:

— The photocell sensor has no polarity.
— Wire to terminal strip T2, terminals 4 and 5.
— Access to the terminals can be gained through standard conduit knockouts (A-E) located around the perimeter of the enclosure.
— Use knockout A only for the photocell sensor and TOD wiring.
— Photocell wires should be at least 18 AWG two conductor. If not run in watertight conduit, use suitable insulation for outdoor wiring.
— Shielded wiring is not required.

The Two-Stage Lighting Control System consists of two components:
— CR7075 Two-Stage Lighting Controller.
— C7057 Cadmium Sulfide Photocell Sensor.

This system offers independent series 60 control of two separate lighting banks based on user determined ambient light intensity level via a single sensor.

Set point indexing is relative. The SET-RUN switch removes the integrating time delay (short cycle protection) circuitry in the SET position. In the RUN position (normal operation) there is a 30 ±10 second time delay for both light fall and light rise initiated relay action.

Two independent Time Of Day (TOD) inputs are provided to override a relay energized condition of either output. This function is generated by a contact closure from an EMS controller or time clock with normally open contacts, i.e., W7505, S7005, etc., between terminals 1 and 2 (stage 1) and terminals 2 and 3 (stage 2) of terminal strip T2 (Fig. 6 and 7). These inputs have priority over any time delay action.

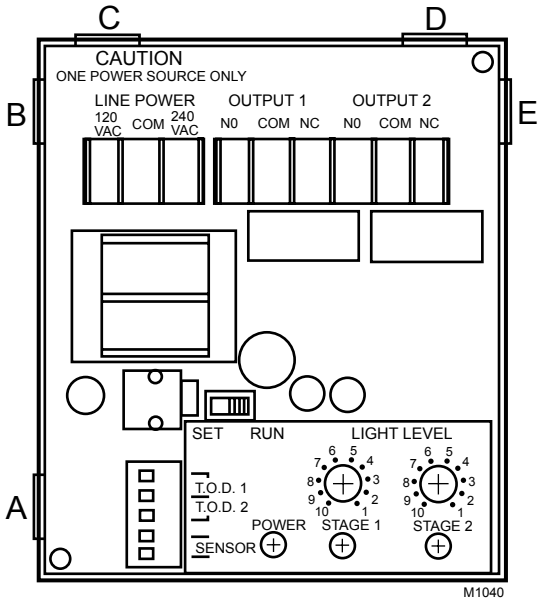

Fig. 3. Knockout locations and internal device layout.

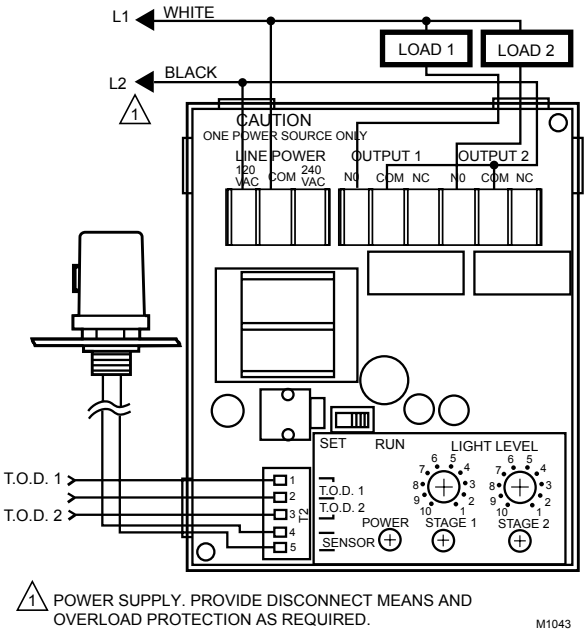

Fig. 4. Wiring for 120 or 240 Vac input and load.

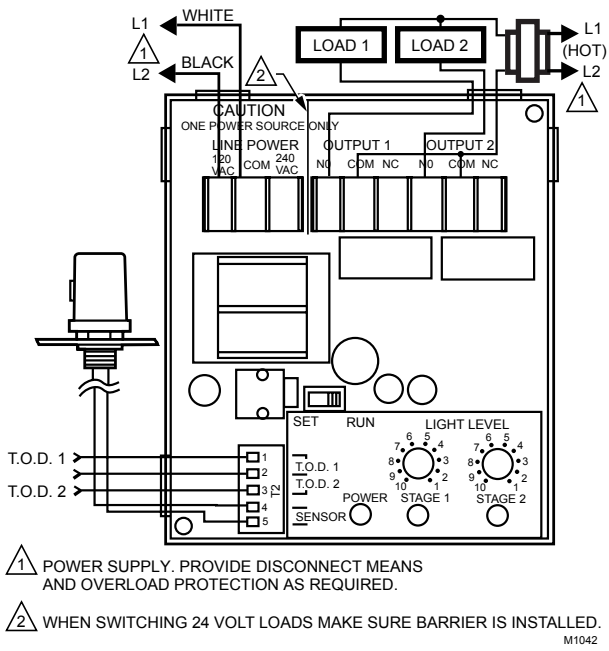

Fig. 5. Wiring for 120 Vac input; 24 Vac load.

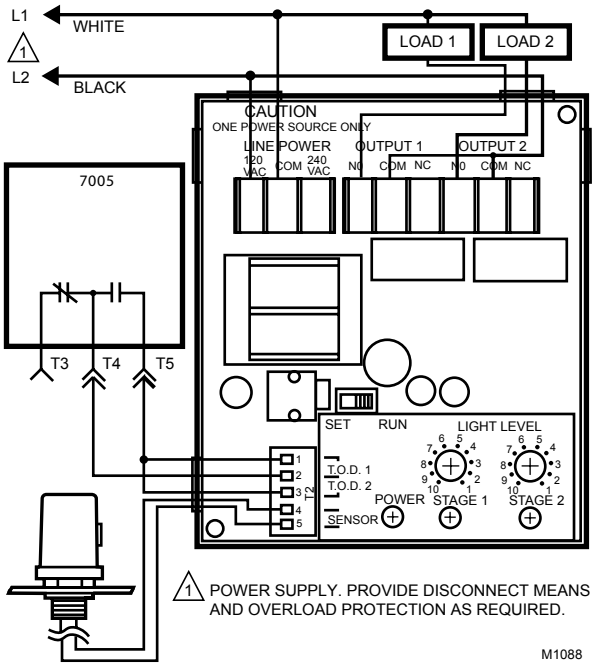

Fig. 6. Wiring for 120 Vac input and load; S7005 Microprogrammer controlling both TOD inputs from a single output.

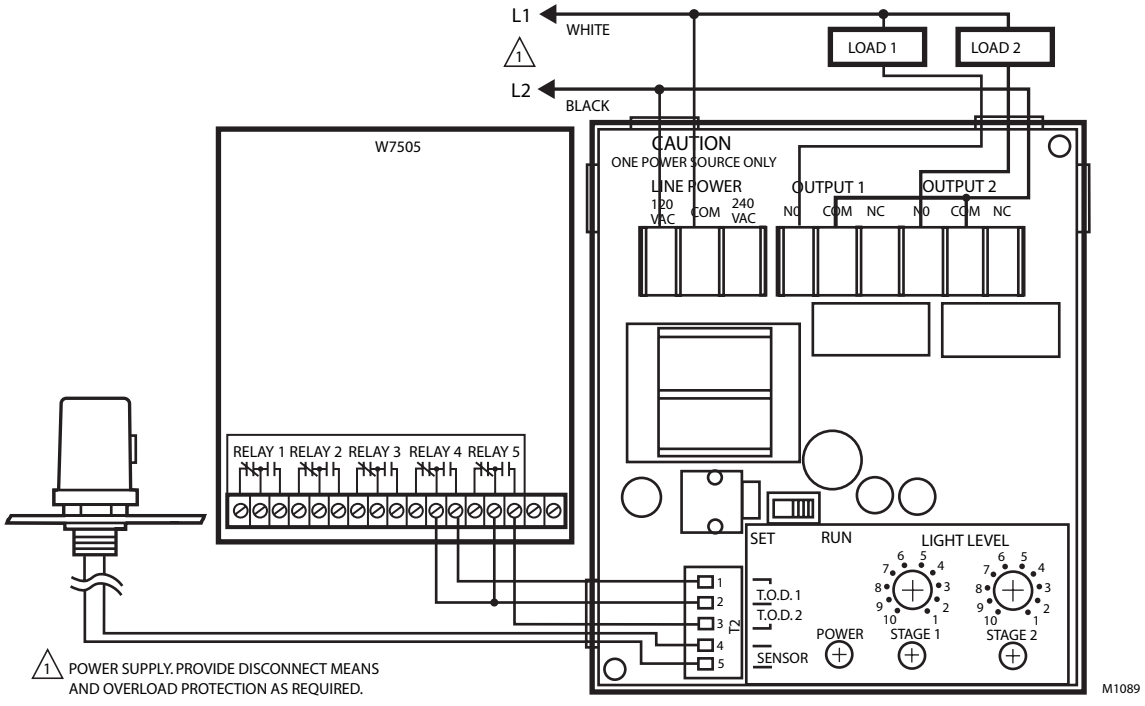

Fig. 7. Wiring for 120 Vac input and load; W7075 Building Management System controlling both TOD inputs.

OPERATION

In many applications, outdoor cosmetic lighting and parking lot lighting activate either simultaneously or with independent controllers by means of a time of day clock with a photocell override. The photocell override turns on lighting during abnormal weather conditions (such as overcast sky).

NOTE: Overriding the time of day feature with a photocell controller provides optimum lighting control, but does not maximize energy savings.

The Two-Stage Lighting Controller overcomes the energy saving and calibration deficiencies mentioned above. Each stage functions separately to control the on/off times of the outdoor cosmetic and parking lot lighting.

NOTE: At the time of installation, one can operationally check the photocell by covering the lens with their hand from a distance of a few inches.

IMPORTANT

Calibration is accomplished by setting light level potentiometers to turn the lights on at the user-determined ambient light level.

After a period of time, the photocell characteristics can change due to accumulation of airborne particles on the lens. Certain environmental conditions (such as high humidity levels) can accelerate this accumulation. This can require changing the light level potentiometer settings. (Refer to the Checkout section for calibration instructions.)

Typical Sequencing

The following is an example of a typical on/off sequence.

NOTES:

— Refer to Fig. 8 for sequence of operation.

— For 24-hour stores, lights simply remain on unless sufficient light exists to warrant their shut-off. As operation in such an arrangement depends only on the photocell, TOD override need only operate on a manual basis.

Typical Evening Start-up

As ambient light level decreases, cosmetic lighting (stage 1) turns on first. As ambient light level decreases further, parking lot lights (stage 2) turn on. Both turn off after the business closes using a separate time of day clock. If desired, independent TOD override for each stage allows turning off one stage at a different time than the other.

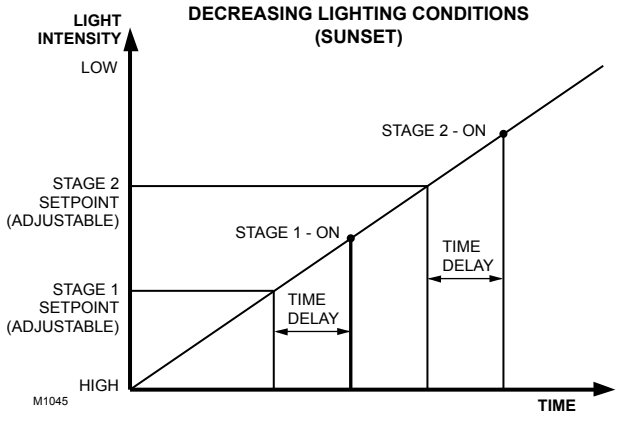

Fig. 8. Sequence of operation.

Typical Morning Start-up

Both cosmetic and parking lot lighting turn on with the time of day clock. If desired, independent TOD override for each stage allows turning on one stage at a different time than the other. As ambient light level increases, the parking lot lights (stage 2) turn off first and the cosmetic lighting (stage 1) turns off last as the ambient light level increases further.

CHECKOUT

In the following procedures, refer to the diagram inside the CR7075A cover or Fig. 3. These show locations of all operating controls, LED lights, and wiring connection points.

Initial Adjustments

1. Adjust both light level potentiometers to the fully clockwise position (#1 index level).
2. Place the SET-RUN switch to the RUN position.

Calibration

After the controller and photocell sensor are installed (with wiring and settings verified), and the photocell has been exposed to light for 16 hours, apply power. The light intensity threshold levels can be calibrated when the desired outdoor light level has occurred.

NOTES:

— Calibration achieves best results when making adjustments at or near the light conditions required for switching the equipment.

— Attempting calibration at extreme light conditions can cause switching to be unachievable.

1. At the desired outdoor light level place SET-RUN switch to the SET position.
2. Slowly rotate stage 1 light level potentiometer counter-clockwise until the stage 1 LED lights.
3. Stage 1 is now calibrated to the light level existing at the sensor and the stage 1 load is energized.
4. Return the SET-RUN switch to the RUN position.

NOTE: To calibrate stage 2, repeat this process except adjust the stage 2 light level potentiometer.

IMPORTANT

After initial setup is complete, make certain the switch is in the RUN position to avoid short cycling the loads.

NOTE: The SET-RUN switch removes the integrating time delay (short-cycle protection) circuitry in the SET position. In the RUN position (normal operation) the calibrated light level must be present for 30 seconds before the load switches.

Honeywell

Home and Building Control
Honeywell
1985 Douglas Drive North
Golden Valley, MN 55422

Home and Building Control
Honeywell Limited-Honeywell Limitée
35 Dynamic Drive
Scarborough, Ontario
M1V 4Z9

Honeywell International
Home and Building Control
Honeywell Building
17 Changi Business Park Central 1
Singapore 486073

Honeywell Europe S.A.
3 Avenue du Bourget
1140 Brussels
Belgium

Honeywell Latin American Region
480 Sawgrass Corporate Parkway
Suite 200
Sunrise FL 33325

63-2180—1 B.B. Rev. 9-01

www.honeywell.com