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PHOTORESISTOR PHOTOGRAPHIC SLAVE UNITS

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A photographic slave unit is a device which, when activated by the light from a camera attached light, will fire a flash unit some distance away from the camera without connecting electrical cords. Thyratron slave units are bulky but have a short time delay of about 0.0005 seconds; selenium cell-transistor units have a delay of around 0.01 seconds requiring long time flash bulbs at the camera and short time flash bulbs at the slave unit. Often they will not fire from an electronic strobe light. The unit described will fire from either flash bulbs or strobe lights, is sensitive to a #5 bulb at 150 feet, has a time delay of 0.003 seconds, is rugged, small, and is assembled from easily obtained parts. It has proven useful in outdoor traffic photography, where the nearby skid marks are photographed by the

![Figure 1](image_url)


510
camera flash, and the distant wreck by the slave flash. It has also proven useful in photographing large rooms, particularly in color photography and could be helpful in other types of crime scene photography.

The parts needed are listed below; the parentheses refer to Lafayette Radio Co., Jamaica, New York, or Allied Radio, Chicago, Illinois:

- 2 Burgess Y15 22.5 volt batteries
- 1 Jenn CDS10 cadmium sulphide photocell (Lafayette CDS10)
- 1 Sigma 11 F 6000 relay (Allied 75PO74)
- 1 Single pole single throw switch
- 1 Metal chassis box 3½ x 2½ x 1½
- 1 Series IV slip on type adapter ring (available at any photographic shop)
- 1 Series IV retaining ring (any photographic shop)
- 1 Connector to flashgun (Miniplug and mini-jack)
- 2 19 mm polaroid discs (from an old pair of polaroid glasses)

**CONSTRUCTION**

The general placement of parts is shown in Figure 1; these are not critical. The two batteries are soldered in series and wrapped in plastic tape, then cemented to the box side. The photocell is cemented to a ¾ inch block of wood which is cemented in the center of the box, near one end. The relay, switch and connector is mounted; if only one flash unit is to be permanently connected to the slave unit, the connector may be dispensed with. The circuit is shown in Figure 2 and the wiring diagram in Figure 3. A 2 x 1 x ¾ inch piece of aluminum stock is bolted to the bottom after a #7 hole is drilled, and it is tapped for a ¾ x 20 thread; this allows the unit to be mounted on a tripod. A ¾ inch hole is drilled in the top to accommodate a ¾ x 20 bolt to attach the flash equipment, if desired. We attached a small tripod head to the unit to allow the lamp to be moved in any direction. A hole is reamed in the end of the box to allow the slip on adapter ring to be inserted; the lugs are flattened inside to attach this firmly to the box. The Polaroid discs are cemented inside the two screw in parts of the adapter rings. Some metal flash units have one side grounded to their frame, and it may be necessary to reverse the connection from the unit, as one side of the relay point is grounded to the metal box chassis.

Screw both Polaroid discs in place; rotate the outer one until the maximum amount of light is transmitted through the two filters. Mark this position with a dot of paint; this represents the zero point of the filters: rotating the outer filter only, decreases the amount of light passing through both filters and serves as an effective light intensity control.

**Use**

Connect the flash gun to the slave unit; insert a test lamp, not a flashbulb, point the photocell face covered with the two Polaroid filters toward the camera flash; turn the switch ON. If the test lamp lights, rotate the outer polaroid filter until, when the photocell face is covered and uncovered by the hand, the test lamp fails to light. Now remove the
test lamp and insert a flash bulb. If electronic strobe is used with the slave, simply turn on and rotate the outer filter until covering and uncovering the photocell opening fails to flash the strobe. Now flash the light at the camera, and the slave will fire. If the unit is to be used in dim light only, the two Polaroid filters and assembly may be omitted.

How It Works

The cadmium sulphide photoresistor has a resistance in the megohm region in the dark, which decreases when light strikes its face. This allows current to flow through the relay, closing the contacts, which in turn fire the light unit.

Comment

Only two parts are critical—the cadmium sulphide cell and the relay. The smaller cadmium sulphide cells require at least $67\frac{1}{2}$ volts and are less sensitive. Other relays tested were either insensitive or mechanically allowed their contact to close on movement of the box. Since current flows only when light hits the photocell, battery life approximates shelf life. Ordinary photographic filters may be used to decrease the light intensity, but the ones suggested give the best general results.

For extreme sensitivity, substitute two Burgess U-30 45 volt batteries in place of the 22.5 volt batteries indicated.
NORTHWESTERN UNIVERSITY'S THIRTEENTH ANNUAL
SHORT COURSE FOR PROSECUTING ATTORNEYS

Ninety-four prosecutors attended the Thirteenth Annual Short Course for Prosecuting Attorneys conducted by the Northwestern University School of Law during the five-day period August 4–9, 1958. The attendants came from twenty-seven states: 24 from Illinois; 13 from Ohio; 9 from Florida; 6 from Louisiana; 5 from Nebraska, Oregon, and Pennsylvania; 4 from New Jersey; 3 from Kansas; 2 from California and North Carolina; and 1 from Alabama, Arizona, Georgia, Idaho, Iowa, Kentucky, Michigan, Minnesota, Mississippi, New Hampshire, New Mexico, Rhode Island, South Dakota, Utah, Wisconsin, and Wyoming.

Listed below are the names of the attending prosecutors and their office locations.

ALABAMA
Brutkiewicz, Donald E.—Mobile

ARIZONA
Powell, Edwin R.—Holbrook

CALIFORNIA
Bowler, Manley J.—Los Angeles
Maddux, Joseph—Santa Rosa

FLORIDA
Baker, H. Paul—Miami
Barmack, Donald B.—Miami
de la Parte, Louis—Tampa
Goshgarian, Aram—Miami
Kynes, James W., Jr.—Ocala
McCormick, John W.—Mount Dora
O’Connell, Thomas G.—Miami
Oldham, Gordon G., Jr.—Leesburg
Stockham, William H.—Sarasota

GEORGIA
Schaffer, Frank D.—Marietta

IDAHO
Welch, Dwaine L.—Payette

ILLINOIS
Appleton, Glenn W.—Aledo
Armstrong, Craig M.—Ottawa
Berkos, Manuel J.—Chicago
Bernard, Burton C.—Granite City
Bucher, Rodney G.—Lincoln
Buonafede, Samuel—Chicago
Cole, Robert L.—Decatur
Cuthbert, Stella Adams—Chicago
Dannehl, Robert L.—Wateka
Donlevy, John D.—Chicago
Durr, Alvin T.—Taylorville
Garippo, Louis B.—Chicago
Kirincich, Joseph V.—Joliet
Lambros, Adeline G-K—Waukegan
McCarthy, Daniel J.—Chicago
Miodoski, Joseph W.—Chicago
Moore, Robert—Urbana
Orenic, Michael A.—Joliet
Petrarca, Richard J.—Chicago
Swanson, Carl A., Jr.—Sycamore
Thomas, Lucia Theodosia—Chicago
Waaler, Robert—Urbana
Warren, Harland D.—Ottawa
Wilson, Robert V.—Harrisburg

IOWA
Branco, Richard F.—Holstein

KANSAS
Duncan, Robert F.—Atchison
Gideon, Clarence J.—Topeka
White, Donald L.—Ottawa

KENTUCKY
Lowery, Jack M.—Louisville

LOUISIANA
Bradford, William Ray—Alexandria
Deane, Walter E.—New Orleans
Emmons, W. Jackson—Jonesboro
Klein, Burton G.—New Orleans
Link, Robert S., Jr.—New Orleans
Smith, Ben E.—New Orleans

MICHIGAN
Shigley, Edward H.—Pontiac

MINNESOTA
Parker, Edward J.—Minneapolis
MISSISSIPPI
Travis, J. A., Jr.—Jackson

NEBRASKA
Brower, Thomas D.—Kimball
Heaton, P. J., Jr.—Sidney
Romig, Marvin A.—Oshkosh
Tucker, D. C.—Minden
Urbom, Ward C.—Arapahoe

NEW HAMPSHIRE
Bigg, Dort S.—Concord

NEW JERSEY
Kaplowitz, Leo—Elizabeth
Schiffman, S. Richard—Paterson
Thevos, John G.—Paterson
Whipple, Lawrence A.—Jersey City

NEW MEXICO
Stevens, George F.—Albuquerque

NORTH CAROLINA
Neaves, Charles M.—Elkin
White, Captain Arthur C., U.S. Army—Fort Bragg

OHIO
Brokaw, G. William—Lisbon
Davis, Ray W.—Circleville
Jacobson, Herbert M.—Dayton
Jones, Robert A.—Batavia
Kane, Lawrence A., Jr.—Cincinnati
Marrs, Robert L.—Hamilton
Masana, Henry A.—Hamilton
McCulloch, John—Akron
Mumpower, Glen E.—Dayton
Parker, E. Allen—Cincinnati
Rathma, William E.—Hamilton
Roulhac, Joseph D.—Akron
Weaver, William H.—Bryan

OREGON
Geurts, Glenn A.—Portland
Howlett, Oscar D.—Portland
Robinson, David, Jr.—Portland
Van Hoomissen, George—Portland
Williams, Grace K.—Canyon City

PENNSYLVANIA
Blanc, Victor H.—Philadelphia
Heilman, Harry A., Jr.—Kittanning
Rosenwald, Edward—Philadelphia
Stranahan, John Q.—Mercer
Williams, Robert W.—Philadelphia

RHODE ISLAND
Larkin, Commander Murl A., U.S. Navy—Newport

SOUTH DAKOTA
Carnahan, William H.—Deadwood

UTAH
Banks, Jay E.—Salt Lake City

WISCONSIN
Miech, Robert J.—Milwaukee

WYOMING
Rees, Lynn—Laramie

The subjects covered in the course, in the order in which they were presented, were:

Preparation for Trial
The Selection of Jurors
Opening Statements
The Examination and Cross-Examination of Expert Witnesses
Closing Arguments
Homicide Investigation ("Murder Unrecognized" and "Apparently Murder")
Basic Principles in the Interrogation of Criminal Suspects
The Effective Use of Medical Evidence in Homicide Prosecutions
Your First Murder Case Investigation and Prosecution—Some "DO's" and "DON'Ts"
The Lie-Detector Technique in Criminal Investigations
The Art of Advocacy
Common Misconceptions about Dead Bodies
Criminal Interrogation Tactics and Techniques
Effective Prosecution Trial Techniques
The Examination of Questioned Documents (1. Handwriting Identification; The Detection of Forgery; etc.; 2. Typewriting Identification; Identification of Paper and Inks; Decipherment of Obliterated Writing; etc.)
Firearms Identification ("Ballistics") and Comparative Micrography ("Tool Mark Identification", etc.)
Getting Exhibits in Evidence
The Defense Viewpoint Regarding Criminal Prosecutions
Chemical Tests for Alcoholic Intoxication
The Prosecution of Drunk Driving Cases
The Preparation and Prosecution of Criminal Cases in Rural Communities
The Taking of a Confession
Law Enforcement and the Concepts of Probation and Parole
The Ethics of Prosecution and Defense
Extradition and Habeas Corpus Problems
What Files and Information Must a Prosecutor Disclose to Defense Counsel?
The Problem of the Indigent Defendant
The Use and Limitations upon Demonstrative Evidence
The Suppression of Organized Crime
Group Discussion Regarding Non-support Actions and Bad-check Cases

The course was under the direction of Professor Fred E. Inbau of the Northwestern University School of Law. Members of the lecture staff were:

Junius L. Allison, Field Director, National Legal Aid Association, Chicago
John Ascher, Lt. of Police and Director, Chicago Police Scientific Crime Detection Laboratory
Richard B. Austin, Judge, Superior Court of Cook County, Chicago
Charles A. Bellows, Attorney-at-Law, Chicago
Rush C. Clarke, Assistant Attorney General, State of Nebraska; Former County Attorney
Robert L. Donigan, Counsel, Northwestern University Traffic Institute, Evanston, Illinois
Peter Fitzpatrick, Attorney-at-Law, Chicago
Richard Ford, M.D., Acting Head, Department of Legal Medicine, Harvard University
Irving Goldstein, Attorney-at-Law, Chicago; Professorial Lecturer, Northwestern University School of Law
Ordway Hilton, Examiner of Questioned Documents, New York City
Fred E. Inbau, Professor of Law, Northwestern University School of Law
Albin P. Lassiter, District Attorney, Monroe, Louisiana
Joseph D. Lohman, Sheriff of Cook County, Chicago; Former Chairman, Illinois Parole and Pardon Board
Dan H. McCullough, Attorney-at-Law, Toledo
Frank J. McGarr, First Assistant U.S. District Attorney, Chicago
C. W. Muehlberger, Ph.D., Director, Michigan Crime Detection Laboratory, Lansing
Alexander J. Napoli, Judge, Municipal Court of Chicago
Virgil W. Peterson, Operating Director, Chicago Crime Commission
Elmer M. Scheele, County Attorney, Lincoln, Nebraska
Ben Schwartz, Assistant Attorney General, State of Illinois
Claude R. Sowle, Assistant Professor of Law, Northwestern University School of Law

The Fourteenth Annual Short Course for Prosecuting Attorneys will be conducted during the five-day period August 3–8, 1959.

**ARSON INVESTIGATION SEMINAR**

The 15th International Arson Investigator’s Seminar will be held at Purdue University from April 27 to May 1, 1959. This five day intensive training program will be conducted in cooperation with the International Association of Arson Investigators and other state agencies interested in the recognition, investigation, prosecution and prevention of the crime of arson.

The seminar will present the nation’s outstanding arson authorities, lecturers and moderators. The program will include essential basic information for the arson investigator which will be expanded into advanced techniques of investigation, criminalistics, and specific training that will lead to more effective detection, apprehension, prosecution and conviction of the arsonist.

For additional information concerning the seminar please address: Professor Shelby Gallien, Seminar Director, Public Safety Institute, Purdue University, West Lafayette, Indiana.