

ELECTRONICS TECHNICIAN I
ELECTRONICS TECHNICIAN II
ELECTRONICS TECHNICIAN III

DEFINITION

To perform technical work in the installation, testing, troubleshooting, maintenance, calibration, inspection, repair and modification of electrical and electronic traffic signal, Intelligent Transportation Systems (ITS) and associated communications systems, networks and control systems.

DISTINGUISHING CHARACTERISTICS

Electronics Technician I - This is the entry level class in the Electronics Technician series. Positions in this class typically have little or no directly related work experience and work under immediate supervision while learning job tasks. The Electronics Technician I class is distinguished from the II level by the performance of less than the full range of duties assigned to the II level. Incumbents work under immediate supervision while learning job tasks, progressing to general supervision as procedures and processes of assigned area of responsibility are learned.

Electronics Technician II - This is the first working level class in the Electronics Technician series and is distinguished from the I level by the ability to perform the full range of duties associated with the installation, testing, troubleshooting, and maintenance of traffic signals and ITS equipment with only occasional instruction or assistance as unusual or unique situations arise. Positions in this class are flexibly staffed and are normally filled by advancement from the I level.

Electronics Technician III – This is the full journey level in the Electronics Technician series. It is distinguished from the lower level by the ability to perform the full range of duties assigned including installing, testing, troubleshooting, and maintaining electrical and electronic traffic signals and ITS equipment, and communications systems, networks, servers, and control systems. Positions in this class are flexibly staffed and are normally filled by advancement from the II level once an incumbent demonstrates the ability to perform the full scope of work including maintaining communication systems, networks, servers, and control system. This class is distinguished from the Senior Electronic Technician in that the latter performs the most difficult and responsible types of duties assigned to classes within this series, including providing technical and functional supervision and performance of advanced journey level activities.

This class is distinguished from the Senior Electronics Technician in that the latter performs the most difficult and responsible types of duties assigned to classes within this series including assigned responsibilities for the installation, maintenance and repair of electrical and electronic systems associated with the City's traffic control systems and exercises technical and functional supervision.

SUPERVISION RECEIVED AND EXERCISED

Electronics Technician I

Receives immediate supervision from an assigned supervisor; receives technical and functional supervision from the Senior Electronics Technician.

Electronics Technician II

Receives general supervision from an assigned supervisor; receives technical and functional supervision from the Senior Electronics Technician.

Electronics Technician III

Receives direction from an assigned supervisor; receives technical and functional supervision from the Senior Electronics Technician.

EXAMPLES OF ESSENTIAL DUTIES– Duties may include, but are not limited to, the following:

Troubleshoot, diagnose, and repair electrical relays, alarm systems, transmitters, gauges, sensors, isolators, analyzers, flowmeters, transducers, uninterruptable power supplies, lighting, starters, circuit breakers, power meters, switches, control wiring, vehicle detection systems and other related traffic signal electrical systems.

Install, troubleshoot, maintain and repair electrical and electronic systems associated with traffic systems.

Review traffic signal plans for constructability and compliance with City, State and Americans with Disabilities specifications.

Perform duties associated with the construction of traffic signals; inspect the work of outside contractors to ensure work meets City and State standards.

Interpret timing strategies to diagnose equipment failures; program traffic signal logic controllers; identify and correct problems with control software; and program test cabinets for field deployment.

Install, maintain, troubleshoot and repair City wide fiber optic cable.

Install, maintain, upgrade and configure local area network hardware, software, system software, servers, switches, modems and cabling.

Install, maintain, program and repair flood warning equipment; calibrate water level pressure transducers and rain gauges.

Install, maintain, monitor, troubleshoot and repair current and future ITS infrastructure and interfaces with radar detection, video detection, Wi-Fi travel time sensors, license plate readers, connected vehicle radios, wireless point to point communications, networked relays and related equipment and infrastructure.

Repair computer controllers for traffic signals; program computers for various types of signal control work; troubleshoot hardware and software related problems; install, wire and repair computer mainframes and personal computers; maintain ITS system servers, software and network; perform software and firmware updates to equipment.

Perform scheduled preventative maintenance; answer emergency and trouble calls regarding signal malfunctions.

Troubleshoot electrical devices and traffic signals; diagnose potential problems and repair or replace devices as required.

Install, configure, and maintain control, video, and communications equipment.

Set and service electrical voltage recording devices; locate underground electrical conductors to prevent damage; inspect and repair new and damaged buried cables; supervise contractors performing installation and repair work near cables.

Operate equipment in a safe and efficient manner in a variety of hazardous environments including traffic.

Design and prepare plans and specifications for current and future communications systems, networks and control systems associated with the City's traffic signals and Intelligent Transportation Systems.

Conducts network communications surveys in support of infrastructure design.

Review final construction plans and specifications, special conditions and agreements to ensure consistency with City standards.

Support long-term planning as it relates to current and future communications systems, networks and control systems.

Prepare and submit Federal Communication Commission license applications; ensure license requirements are adhered to.

Participate in the evaluation of hardware and software solutions for the data center, traffic signal and ITS infrastructure and City-wide traffic network.

Participate in the installation of servers and related components in the data center; install virtualized server software systems; create department servers; install and configure department server software.

Respond to network outages; troubleshoot, diagnose and resolve outages.

Build and maintain positive working relationships with co-workers, other City employees, and the public using principles of good customer service.

Provide inspection of traffic signal projects.

Perform related duties as assigned.

MINIMUM QUALIFICATIONS

Electronics Technician I

Knowledge of:

Basic principles of electrical and electronic system repair, maintenance, and system design.

Types of tools, methods and materials used in electrical work. Components and parts used in modern street lighting, traffic signals, Intelligent Transportation Systems, or other electrical control systems.

Computer hardware and software.

Safe work practices.

Ability to:

Perform maintenance, troubleshoot and repair work on a wide variety of electrical and electronic equipment and devices.

On a continuous basis, know and understand operations, and observe safety rules; intermittently analyze problem equipment; identify and locate equipment; interpret work orders; remember equipment location; and explain jobs to others.

Intermittently, sit while studying or preparing reports; bend, squat, climb, kneel and twist when installing, repairing, and servicing equipment; perform simple and power grasping, pushing, pulling, and fine manipulation; and lift or carry weight of 50 pounds or less.

Understand and interpret written and oral instructions, electrical drawings, blueprints, plans and wiring diagrams.

Use and care for tools and equipment used in maintaining and repairing electrical and electronic devices.

Work safely under emergency and hazardous conditions including live vehicle traffic.

Assist others in municipal electrical and electronic maintenance and repair duties.
Communicate clearly and concisely, both orally and in writing.

Establish and maintain effective working relationships with those contacted in the course of work.

Experience and Training

Experience:

One year of experience in the maintenance and repair of electrical equipment and systems related to an electric or service-oriented utility, industrial plant, traffic signal systems, or other electric control system or providing support for computer systems, networking systems and virtualized server environments.

Training:

Equivalent to the completion of the twelfth (12th) grade, GED, or higher level degree supplemented by specialized training in electronics, computer science, or a related field.

License or Certificate

Possession of a valid California driver's license by date of appointment.

Electronics Technician II

In addition to the qualifications for the Electronics Technician I:

Knowledge of:

Complex principles of electrical and electronic repair, maintenance and system design.

Principles, methods, materials and equipment used in the installation, testing, maintenance, operations and modification of electronics equipment.

Traffic signal control equipment, including logic controllers, battery backup systems, intelligent transportation systems components and related devices.

Components and parts used in modern street lighting; traffic signals, Intelligent Transportation Systems.

Federal, state and local laws, codes and regulations pertaining to traffic signals operations and maintenance.

Ability to:

Troubleshoot and repair a wide variety of electrical and electronic equipment and devices.

Read and understand detailed and complicated electrical and electronic schematics.

Design, understand and troubleshoot complicated control, logic statements and relaying

schemes.

Troubleshoot, maintain and repair critical City wide fiber optic network.

Understand redundant network topologies.

Experience and Training

Experience:

Two years of responsible experience performing technical work in the installation, testing, troubleshooting, maintenance, calibration, inspection, repair and modification of electrical and electronic traffic signal or providing support for computer systems, networking systems and virtualized server environments similar to that of an Electronics Technician I with the City of Roseville.

Training:

Equivalent to the completion of the twelfth (12th) grade, GED, or higher level degree supplemented by specialized training in electronics, computer science, or a related field.

License or Certificate

Possession of a valid California driver's license by date of appointment.

Electronics Technician III

In addition to the qualifications for the Electronics Technician II:

Knowledge of:

Principles of networking, system design development, analysis and testing.

Virtualized server environment including hardware installation, software setup and routine maintenance.

Ability to:

Troubleshoot, analyze and resolve networking, system and communication systems issues associated with the City's traffic signals and Intelligent Transportation Systems.

Experience and Training

Experience:

Electronics Technician I/II/III

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Two years of responsible electronic maintenance experience performing technical work in the installation, testing, troubleshooting, maintenance, calibration, inspection, repair and modification of electrical and electronic traffic signal and providing support for computer systems, networking systems and virtualized server environments similar to that of an Electronics Technician II with the City of Roseville.

Training:

Equivalent to the completion of the twelfth (12th) grade, GED, or higher level degree supplemented by specialized training in electronics, computer science, or a related field.

License or Certificate

Possession of a valid California driver's license by date of appointment.

Possession of an International Signal Association Level 3 certificate and possession of Comp TIA A+ certificate.

03-25-23	Electronics Technician I/II/III
05-09-20	Moved EU Electronics Technician to EU Instrument & Control Technicians
02-20-19	
05-12-07	
04-15-06	

02-17-05	
01-18-99	
10-01-88	
06-09-80	Electrical Eng. Tech I
/II 05-16-77	Electrical Technician
07-01-79	Electrical Eng. Tech
10-30-73	
-67	
-65	
-64	Electrical Estimator