

T54-1 SYSTEM

**DISTRIBUTED CIRCUIT BREAKER
Tunnel Lighting Control System**

APPLICATIONS

- Long Tunnel
- Bidirectional
- Unidirectional



PROJECT	
LOCATION	

FEATURES

- 12 Output Channels 1 night and 5 daytime levels per direction
- 4-20mA signal input MAS, TMAS and TLUM sensors
- Hand/Off/Auto Selector switch for each level
- 30A for one and two pole. 20A for three pole.
- Weatherproof 2 Line LCD with membrane keypad
- Configure Setpoints, Timing, and Sensor Calibration
- Control Outputs, Operating Mode
- Monitor light sensor, control output, circuit breaker
- Optional Alternation sequence

DESCRIPTION

PLCTransportation's T54-1 system is a distributed long tunnel lighting control system designed for any unidirectional and bidirectional lighting application. The T54-1 system is based on an industrial microprocessor lighting controller, and is packaged with lighting relays in a NEMA rated enclosure, with outputs that are switchable circuit breakers.

The purpose of tunnel lighting controls is two fold. Safety, by providing vehicle drivers with sufficient visibility, so that they can avoid roadway hazards, especially in tunnel thresholds. Energy control, by illuminating the tunnel interior to an appropriate lighting level proportional to sensed exterior light. The T54-1 controller can measure light at each portal with one of three PLC-Transportation 4-20mA sensors. Illuminance is detected by the MAS or TMAS, while luminance is sensed by the TLUM.

The system is cost-effective and easily-configurable with programming and accessories. The system has six output channels per direction providing a night function as well as five daytime light levels according to the sensors input set points for accuracy.

Each channel has an adjustable ascending and descending input time delay (0-99 min) to filter lightning strikes and fast moving clouds.. Hold-On timer (0-240 min) to keep the output on for a minimum time to [prevent short cycling of HID fixtures Hold-Off timer (0-99 min) to allow fixtures to cool off before restriking. Optional alternation sequence of lights and night and day crossover method can be configure providing a long life span on any tunnel fixtures.

The T54-1 system can switch any light sources such as Fluorescent (FL), Low Pressure Sodium (LPS), High Pressure Sodium (HPS), Metal Halide (MH) and Light Emitting Diode (LED). The T54-1 architecture assembly is very simple; it is housed in a NEMA 3R, 4X or 12 enclosure depending on the location. The system is pre-wired and tested to UL508A requirements for industrial control equipment. Incoming 120 VAC powers the system. Other source of power can be converted down by providing an additional transformer inside the system.

The T54-1 switches remotely controllable circuit breakers. Multiple panelboards can be linked together into a system capable of switching 168 circuits. Circuit Breaker are rated for 30A for one pole and two pole and 20A for three pole.

TECHNICAL DATA - T54-2 SYSTEM

Input Voltage: 120 VAC, (Additional Transformer 480/277 VAC)
 Output Switching: 15 Amp Electrically Interposing Relay
 Hardware Failsafe: Software, Hardware

Controller: T54 Controller
 Power Failure Backup: Flash Memory
 Program Update: Editor
 Input Controller Power: 24VDC
 Adjustment Interface: Text membrane keypad
 Operator Display: 2 line LCD text display
 Set points Adjustment: High and Low with adjustable deadband
 Output Level Control: Manual On, Off or Auto
 Auto Control Modes: RUN: Photo, timing, crossover, alternation or combinations:
 TEST: Photo setpoint control with no timing
 PROGRAM: Data Entry of setpoints, timing and operational values

Input Delay Timer: 0-99 minutes ascending and descending
 Hold-ON-Timer: 0-240 minutes interval
 Hold-OFF-Timer: 0-99 minutes cool down
 Day & Night Crossover: 0-10 minutes
 Simulator: Force Constant using keypad

Illuminance Sensor: PLC-Multipoint MAS or TMAS (separate datasheet)
 Luminance Sensor: PLC-Multipoint TLUM sensor (separate datasheet)
 Signal Input: 4-20mA with 24VDC compliance
 Sensor Calibration: Zero & Span configuration
 Heater: Thermostatically controlled with fan
 Front Door Operators: Local Hand - Off - Auto switch with LED pilot light

Enclosure: NEMA - 3R, 4X and 12 Surface Mount Enclosure
 Temperature Range: 32° to 140°F (0° to 40°C)

Communications: Optional 10 Mbps TCP/IP
 Circuit Breakers: 1 pole and 2 pole 30A, 3 pole 20A
 Number of Panelboards: 8
 Total number of circuits: 168

ONE-LINE BLOCK DIAGRAM

