

T57-4 SYSTEM

**ANALOG LED DIMMING
Tunnel Lighting Control System**

APPLICATIONS

- Long Tunnels
- 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 contactor
- 15 Amp Electrically Held Relay
- Text membrane keypad
- Configure Setpoints, Timing, and Sensor Calibration
- Control Outputs, Operating Mode
- Monitor light sensor, control output, contactor status
- Multiple Ethernet drops for distributed dimming network
- Optional Alternation sequence and time clock schedule

DESCRIPTION

PLC Transportation's T57-4 system provides tunnel lighting control for long unidirectional and bidirectional lighting applications. The T57-4 LED dimming system is based on an industrial microprocessor lighting controller, and is packaged with a lighting relays, fuses and power distribution in a NEMA rated enclosure. The T57-4 system provides 4-20mA signal to Remote Dimmer Enclosures (RDE) to control the dimming driver for LED fixtures. A RDE-1 or RDE-4 is applied for shorter tunnel application and it's installed closer to the portal of the tunnel. See RDE datasheet for more details of the remote dimming enclosure.

The system is cost-effective and easily-configurable. Six output channels can be programmed for night lighting control as well as five daytime light levels. All levels have separate On and Off setpoints. Each channel has an adjustable ascending and descending input time delay to filter lightning strikes and fast moving clouds. Dimming range is from 10 - 100 percent Fade times is from 0 - 60 seconds. Optional alternation sequence of lights and night and day crossover method can be configure providing a long life span on any tunnel fixtures. The controller has a built-in

input time delay and hold-on time eliminating any sudden surge in the fixtures of the tunnel.

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 T57-4 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 T57-4 power and control component have been designed for tunnel Light Emitting Diode (LED) loads. The T57-4 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.

TECHNICAL DATA - T57-4 SYSTEM

Input Voltage: 120 VAC, (Additional Transformer 480/277 VAC)
 Output Switching: 15 Amp Electrically Held Relay
 Hardware Failsafe: N. C. Contactor

Controller: T57 Controller
 Power Failure Backup: Flash Memory
 Program Update: EZ Store
 Input Controller Power: 24VDC
 Adjustment Interface: Text membrane keypad
 Operator Display: 2 line LCD text display
 Set points Adjustment: High, Low and Dim 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

HilLow Voltage Trim: 0-100
 HilLow Output Trim: 0-100%
 HilLow Setpoint Value: 0-xx Footcandle (Cd/m²)
 Fade/Rise Time: 0-60 seconds

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
 Remote Dimming Enclosure: PLC-Multipoint RDE-1 and RDE-4 (separate datasheet)
 Temperature Range: 32° to 140°F (0° to 40°C)
 Communications: Optional 10 Mbps TCPIP
 Signal: 4-20mA
 Distance: Up to 2000ft loop
 Certification: UL 508A (CAN/CSA C22.2.0014-M91)

ONE-LINE BLOCK DIAGRAM

