

T41-1

STAND ALONE
Tunnel Lighting Control System

APPLICATIONS

- Unidirectional
- Bidirectional
- Unidirectional Ramp
- Bidirectional Underpass



PROJECT	
LOCATION	

FEATURES

- 4 Output Channels 1 night and 3 daytime levels per direction
- 4-20mA signal input MAS, TMAS and TLUM sensors
- Hand/Off/Auto Selector switch for each contactor
- 20A multi-pole lighting contactors
- Weatherproof 4 line text keypad
- Configure Setpoints, Timing, and Sensor Calibration
- Control Outputs, Operating Mode
- Monitor light sensor, control output status
- Optional Alternation sequence and time clock schedule

DESCRIPTION

PLC Transportation's T41-1 system provides tunnel lighting control for long unidirectional and bidirectional lighting applications. The T41-1 system is stand alone industrial microprocessor lighting controller, and is packaged with normally closed interposing relays, fuses and power distribution in a NEMA 1 rated enclosure.

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 threshold to an appropriate lighting level proportional to sensed exterior light. The T41-1 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. Four output channels can be programmed for night lighting control as well as three daytime light levels.

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

The T41-1 system can handle controlling any light sources such as Fluorescent (FL), Low Pressure Sodium (LPS), High Pressure Sodium (HPS), Metal Halide (MH) and Light Emitting Diode (LED). The T41-1 architecture assembly is very simple, it's housed in a NEMA 3R, 4X or 12 enclosure depending on the location. The system is pre-wired and tested to UL508A (CAN/CSA C22.2.0014-M91) 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 - T41-1

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

Controller: T41 Controller
Power Failure Backup: Flash Memory
Program Update: Cartridge
Input Controller Power: 24VDC
Adjustment Interface: Text keypad
Operator Display: 4 line text display
Set points Adjustment: High and Low with adjustable deadband
Output Level Control: On, Off, Auto
Auto Control Modes: RUN: Photo, timing, crossover, alternation or combinations:
 TEST: Photo setpoint control with no timing

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 - 1 Enclosure
Dimensions: 20"H x 20"W x 8"D Typical
Temperature Range: 32° to 140°F (0° to 40°C)

Communications: NA
Certification: UL 508A (CAN/CSA C22.2.0014-M91)

ONE-LINE BLOCK DIAGRAM:

