

tSL-P4R1 tSL-PA4R1

Single Stack Light Monitoring Module

Features

- Able to detect the status of each color segment: ON, OFF, or Flashing
- 4-channel DC/AC digital input and 1-channel alarm relay output
- Status monitoring for user-defined combinations of multiple color segments
- Reports the duration of the previous status
- Supports Modbus RTU, Modbus TCP and MQTT protocols
- Includes RS-485/Ethernet communication interfaces
- Includes redundant power inputs: PoE (IEEE 802.3af, Class 1) and DC input
- Web-based configuration interface and firmware update via Ethernet
- Relay output for alarm devices
- Wide operating temperature range: -25 to +75°C

Introduction

The main purpose of managing machine status is to reduce the amount of downtime and to reduce production costs. The easiest way to achieve this is by installing a tSL-P4R1/tSL-PA4R1 intelligent module from ICPDAS, which monitors the output of the machine's indicators without affecting the operation of the equipment, thereby enabling the current operation stage of the machine to be mastered and ensuring timely command of the logistics system support in order to achieve production goals.

The tSL-P4R1/tSL-PA4R1 is a stack light monitoring module which includes 4-channel DC/AC digital input and 1-channel relay output that can be used to monitor the status of the stack light of the MES (Manufacturing Execution System) machine. The module can be used to detect the status of each color segment of the stack light as being either OFF, ON, or flashing. In addition to detecting the status of each individual color segment, the status of the combination of multiple color segments can also be defined, including the ability to report the duration of the previous status. By integrating the tSL-P4R1/ tSL-PA4R1 module into your system, it is easy to implement stack light status monitoring on an MES via SCADA software to improve machine utilization and throughput.

Applications

• Factory Automation • Machine Automation • Remote Maintenance • Remote Diagnosis • Testing Equipment

System Specifications

Model		tSL-P4R1	tSL-PA4R1
Software			
Built-in Web Server		Yes	
Communication			
RS-485 Port		Baud Rate = 1200 ~ 115200 bps	
Ethernet Port		10/100 Base-TX, 8-Pin RJ-45 x1 (Auto-negotiating, Auto-MDI/MDIX, LED indicators)	
Security		IP filter (whitelist) and Password (web)	
Protocol		Modbus/RTU, Modbus TCP and MQTT	
Dual Watchdog		Yes, Module (2.3 seconds), Communication (Programmable)	
LED Indicators			
S1		System indicator	
E1		PoE indicator (Green)	
		Link/Act,(Yellow)	
Isolation			
Intra-module Isolation, Field-to-Logic		3750 VDC	
EMS Protection			
ESD (IEC 61000-4-2)		±4 kV Contact for Each Terminal	
		±8 kV Air for Random Point	
EFT (IEC 61000-4-4)		±2 kV for Power	
Power Requirements			
Reverse Polarity Protection		Yes	
Power Input		Terminal Block: +10 ~ +48 VDC	
		PoE: IEEE 802.3af, Class 1	
Consumption	PoE	1 W Max.	
	Non-PoE	0.9 W Max.	
Mechanical			
Dimensions (W x L x H)		52 mm x 98 mm x 27 mm	
Installation		DIN-Rail Mounting	
Environment			
Operating Temperature		-25 to +75°C	
Storage Temperature		-30 to +80°C	
Humidity		10 to 95% RH, Non-condensing	

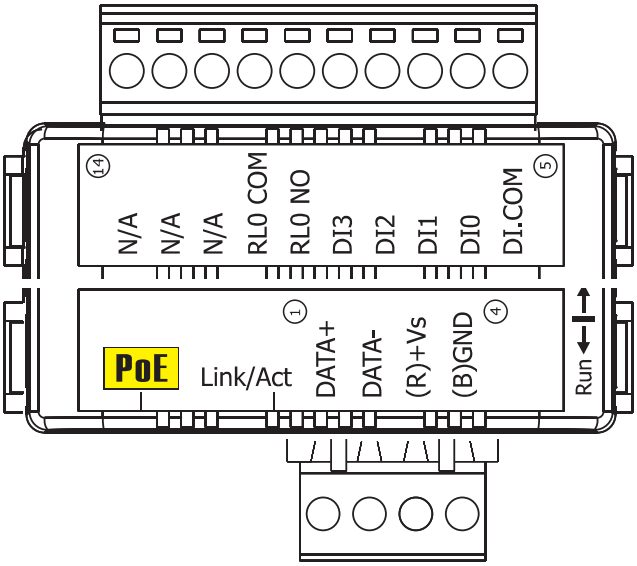
I/O Specifications

Model		tSL-P4R1	tSL-PA4R1
Digital Input			
Input Channels		4	
Type		Wet Contact (Sink, Source)	
ON Voltage Level		+10 VDC ~ 50 VDC	80 VAC ~240 VAC
OFF Voltage Level		+4 V Max.	30 VAC Max.
Input Impedance		10 KΩ, 0.5 W	150 KΩ, 2 W
Programmable Digital Filter		0 ~ 6500 ms	
Max. Stack Light Flashing Speed		3 kHz	60 Hz
Able to detect the status of each color segment: ON, OFF, or Flashing		Yes	
Status monitoring for user-defined combinations of multiple color segments		Max. 81 combinations	
Report duration of previous status		Yes, 10 ~ 65500 s	
Overvoltage Protection		70 VDC	300 VAC
Isolation		3750 VDC	
Digital Output			
Output Channels		1	
Type		Power Relay, Form A (SPST N.O.)	
Operating Voltage Range		250 VAC or 30 VDC	
Max. Load Current		5 A	
Operate Time		6 ms	
Release Time		3 ms	
Electrical Life (Resistive load)	VDE	5 A @ 250 VAC 30,000 ops (10 ops/minute) at 75°C	
		5 A @ 30 VDC 70,000 ops (10 ops/minute) at 75°C	
	UL	5 A @ 250 VAC/30 VDC 6,000 ops	
		3 A @ 250 VAC/30 VDC 100,000 ops	
Mechanical Life		20,000,000 ops at no load (300 ops/minute)	
Power-on Value		Yes, Programmable	
Safe Value		Yes, Programmable	

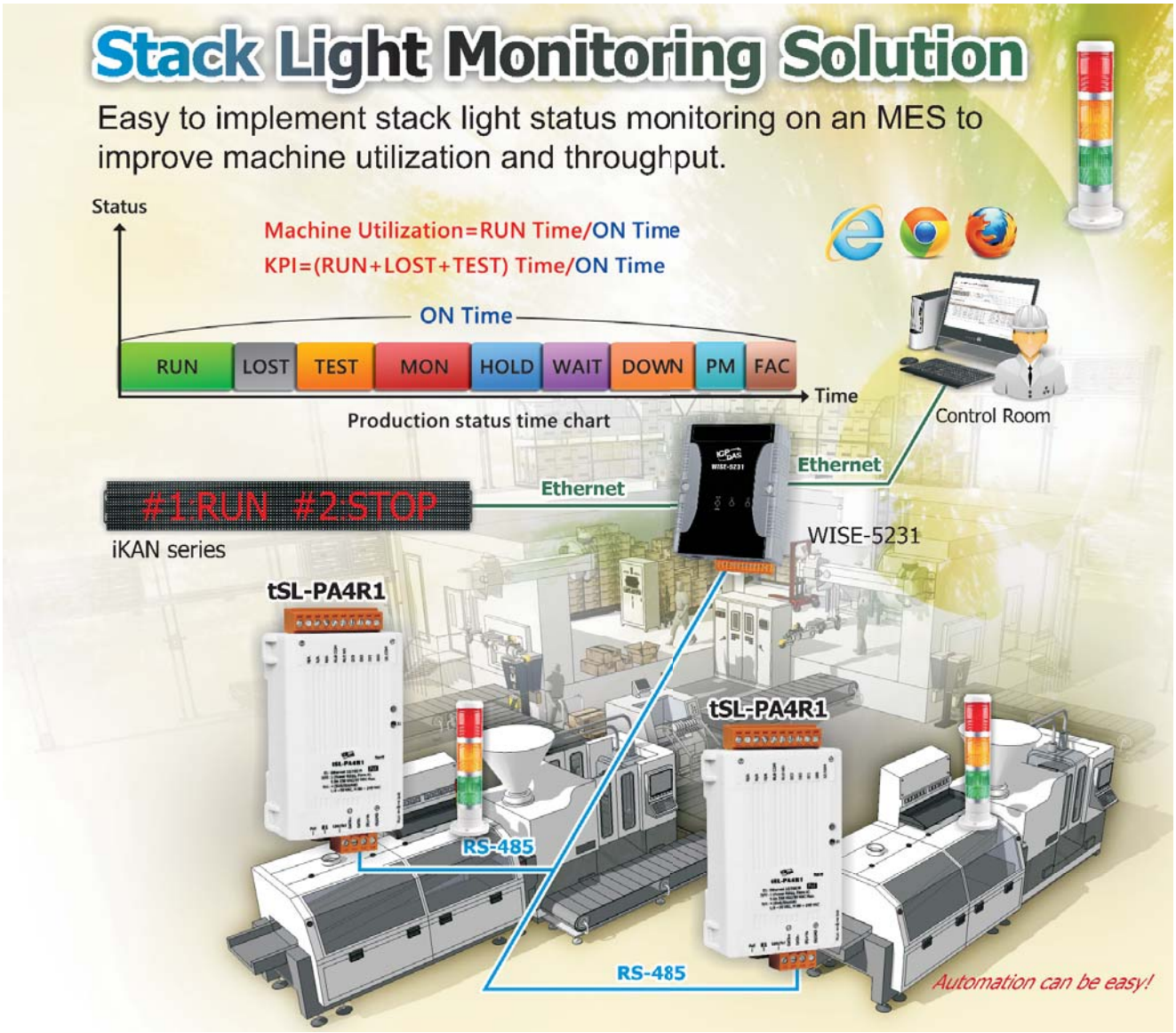
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Pin Assignments

tSL-P4R1/tSL-PA4R1



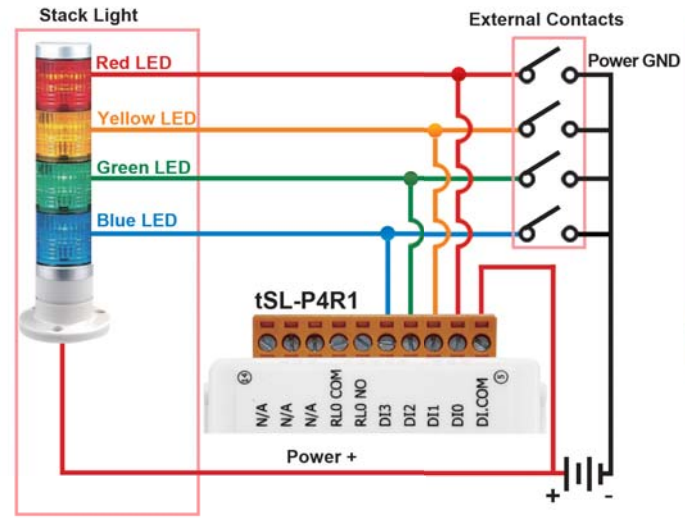
Applications

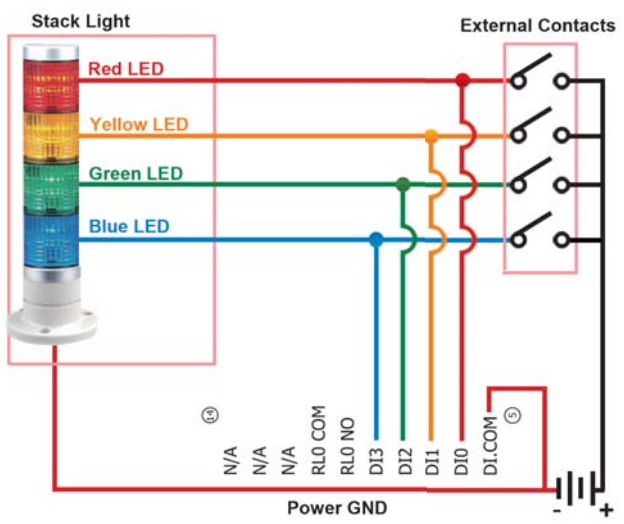


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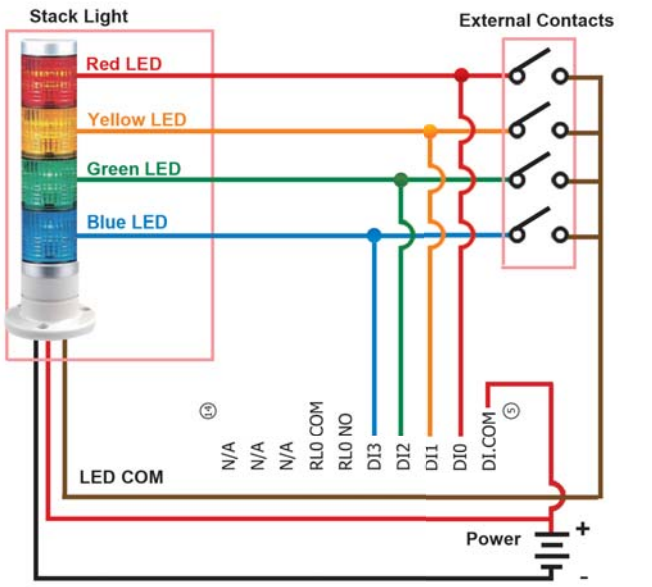
Wire Connections

tSL-P4R1

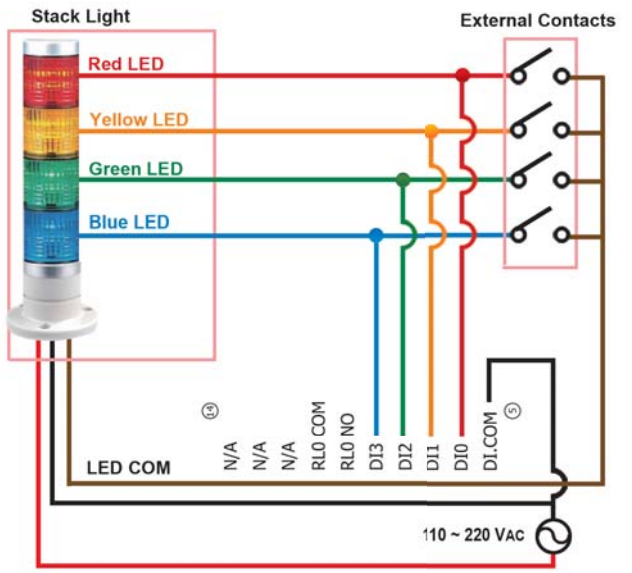




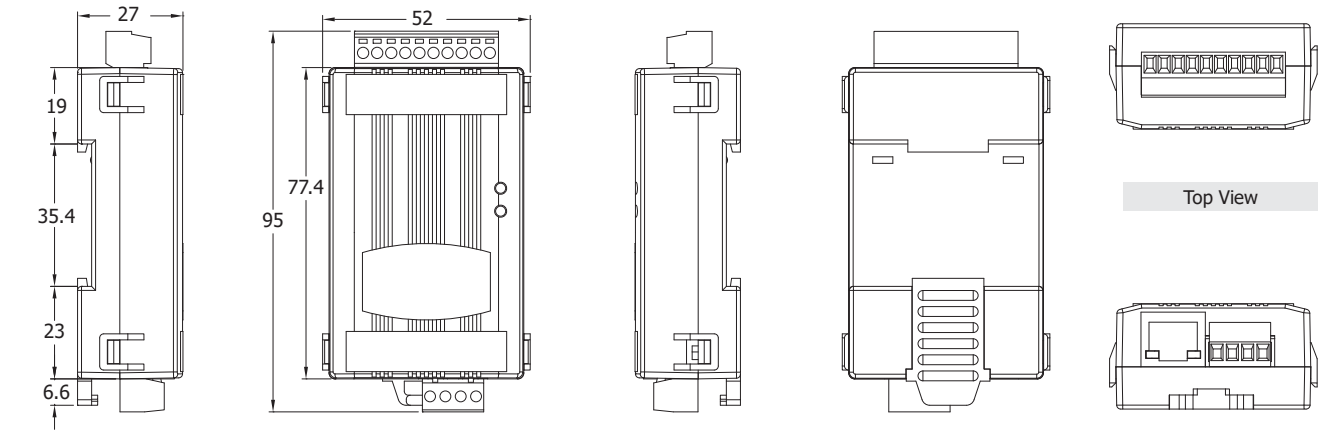
tSL-P4R1



tSL-PA4R1



Dimensions (Units: mm)



Left Side View | Front View | Right Side View | Rear View | Top View | Bottom View

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Ordering Information

tSL-P4R1 CR	Single Stack Light Monitoring Module with Ethernet/RS-485 Interface and PoE for DC Stack Lights. (4 DC DI + 1 Relay) (RoHS)
tSL-PA4R1 CR	Single Stack Light Monitoring Module with Ethernet/RS-485 Interface and PoE for AC Stack Lights. (4 AC DI + 1 Relay) (RoHS)

Related Products

 tM-7520U CR	Isolated RS-232 to RS-485 Converter (RoHS)
 tM-7561 CR	Isolated USB to RS-485 Converter (RoHS)
 I-7514U CR	4-channel RS-485 Hub (RoHS)
 NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)

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