



tSL-PA4R1

RS-485 / Ethernet

SL-P6R1-WF

Wi-Fi / RS-485 / Ethernet

Stack light monitoring modules



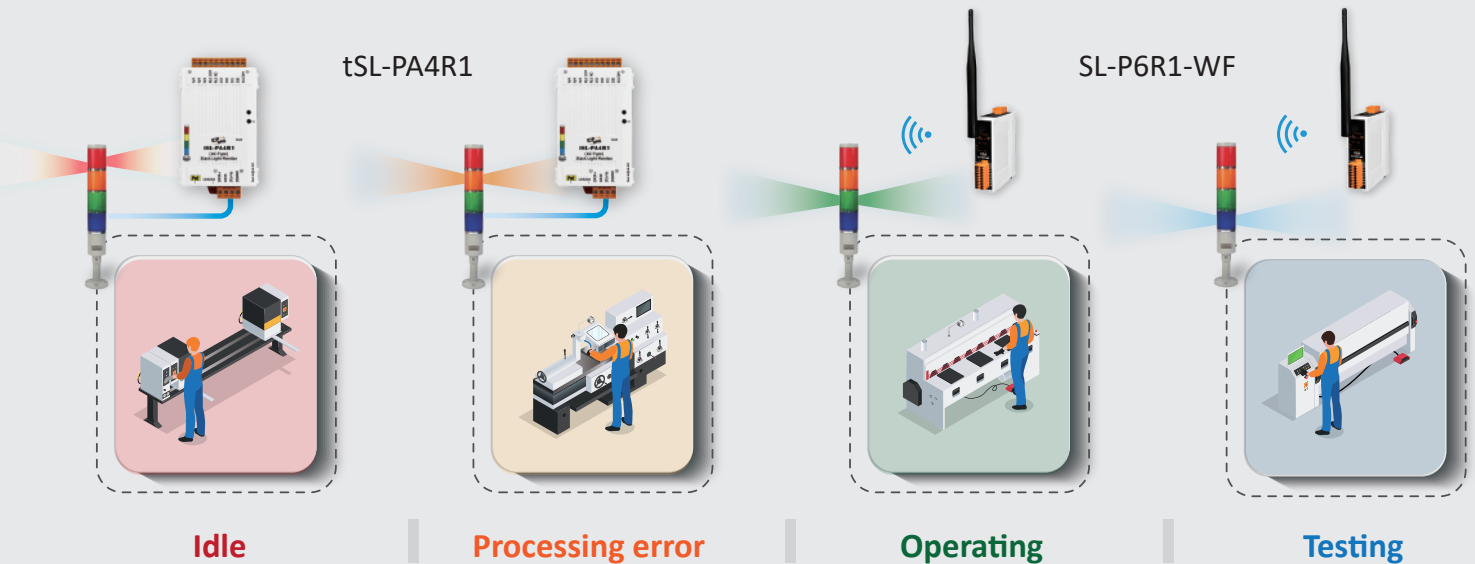
# ICP DAS's Stack Light Monitoring Modules Light Up Smart Factories

The best helper for the Andon system //

- Stack lights status monitoring
- Easy device expansion
- Support wired/ wireless communication
- Support Modbus RTU/TCP, MQTT communication protocols
- Status monitoring for up to 81 user-defined color segment combinations
- Report the duration of the previous status for MES & ERP to calculate the availability

## Product introduction

The normal operation of the machine is related to the availability and production cost of the machine. However, there is a severe shortage of labor, which, in turn, increases the cost of labor. Fortunately, with the help of ICP DAS's stack light monitoring modules, users can monitor the status of machine lights, and if an abnormal situation occurs, an alarm will be immediately triggered. Thus, it is possible to reduce labor costs for monitoring machines and their idle time. ICP DAS's stack light monitoring modules are divided into two series: tiny tSL series with 4-channels and wireless SL series with 6-channels respectively. The modules contain 4 or 6-channels of DC/AC digital input and 1-channel of relay output. They can communicate via RS-485, Ethernet, or Wi-Fi, monitor the machine status without affecting its operation, and check the operational status of field equipment in real-time; all this ultimately allows users to build a smart factory.



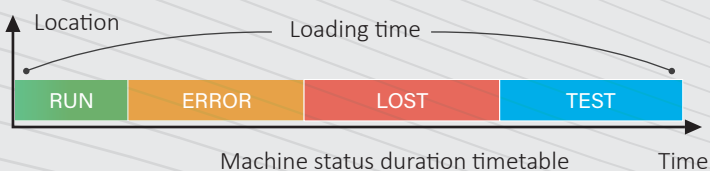
### ■ Customizable color signals

Users can set the values of various color signals, such as operating, idle, processing, and processing error, and then convert the signal combinations into a status value. ICP DAS' modules can directly read the results according to the status value, without the need to read each signal one by one, and issue an alarm when equipment error is detected, informing the on-site personnel to solve the problem immediately.

### ■ Providing accurate data for MES and ERP to calculate the availability

The stack light monitoring modules provide information about the duration of the previous light status. By status duration, users can control the amount of time that the machine spends in operating, troubleshooting, and processing. Then, MES and ERP can be combined for availability calculation and problem analysis.

- $\text{Availability} = \frac{\text{Operating time}}{\text{Loading time}} \times 100\%$



### ■ Detection of the flashing status

ICP DAS's stack light monitoring modules have the edge computing function that can determine the on/off status of the stack lights as well as the flashing status.

### ■ Low network load

In addition to supporting the standard Modbus communication protocol, the ICP DAS's stack light monitoring modules also support the MQTT communication protocol. In the past, it was required to poll light status regularly. But now, with the help of ICP DAS's modules, when the light status changes, information about this will be immediately sent back to the control center, which has helped to significantly reduce the load on the network.

### Web-based configuration interface

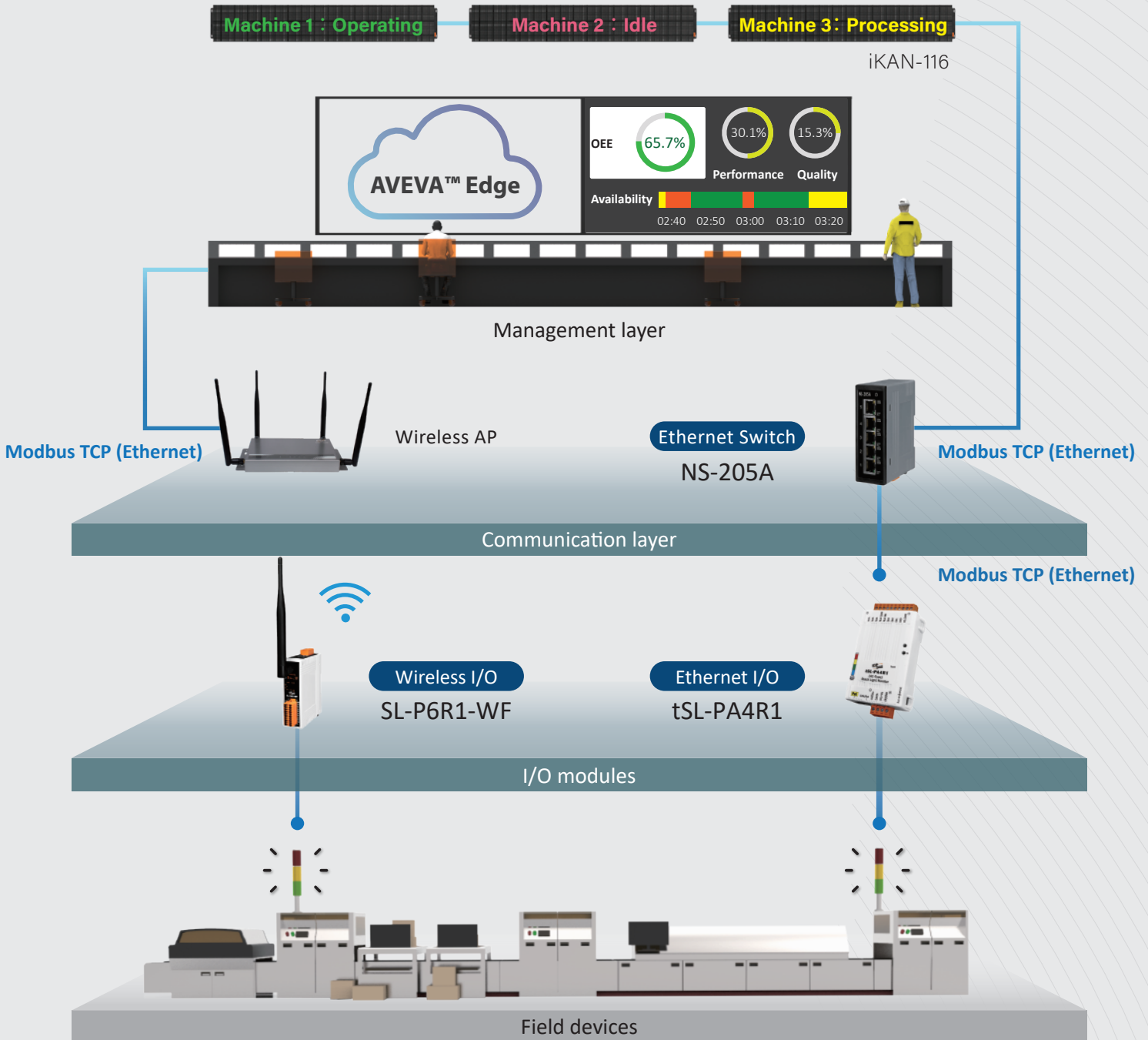
The tiny tSL series products and wireless SL series products have a built-in web server that allows users to easily install and configure them without the need for additional software or programming skills. Users can quickly login to the module through a web browser on a smartphone or computer to set up configurations.





## OEE optimization

With the help of ICP DAS's modules, the machine operational status monitoring system can transmit information to the SCADA system in the control center through wired/wireless communication methods and display the machine status in real-time on the iKAN display on the field side. In this way, personnel can easily monitor the machine's status and quickly troubleshoot equipment, which reduces machine idle time and helps achieve production goals.

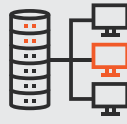


## Recommended products



## Application scope

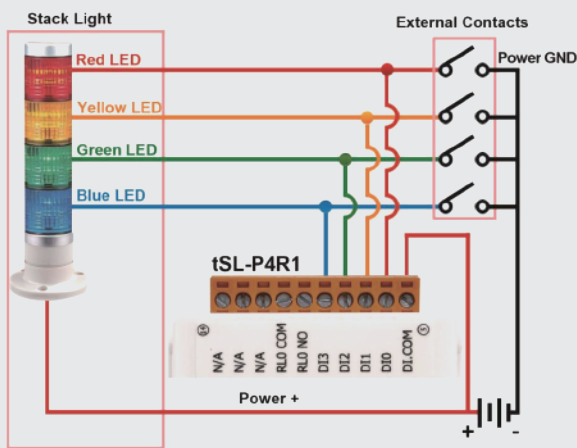
The stack light monitoring modules can be applied to control the factory machines. They will display the real-time status of machines in the factory and control center and issue an alarm when an equipment error is detected, reducing the machine's idle time. Also, the monitoring modules provide stack lights status reports for management personnel to analyze the availability and achieve the preventive maintenance and diagnosis, thereby helping to build a smart factory.



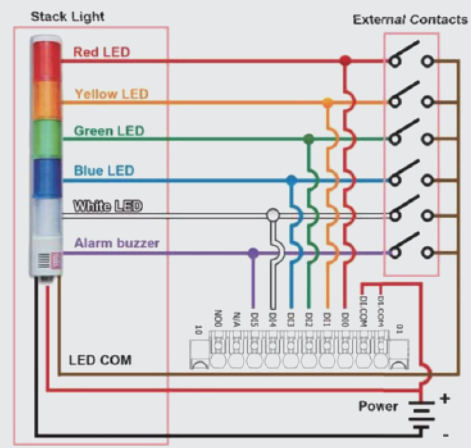
Factory automation   ■   Machine automation   ■   Remote maintenance   ■   Remote diagnosis   ■   Equipment testing

## Connection methods

### tSL SERIES



### SL SERIES



## Selection guide

Model		tSL-P4R1	tSL-PA4R1	SL-P6R1-WF	SL-PA6R1-WF
Channel	DI	4(DC)	4(AC)	6(DC)	6(AC)
	DO	1(Power Relay)	1(Power Relay)	1(Power Relay)	1(Power Relay)
Communication interface		RS-485, Ethernet, PoE		RS-485, Ethernet, PoE, Wi-Fi	
Dimension(mm)		52 x 98 x 27(W x L x H)		33 x 108 x 127(W x L x H)	
Wi-Fi Transmission distance		N/A		50mm	
Communication protocol		Modbus RTU(RS-485), Modbus TCP (Ethernet, Wi-Fi), MQTT (Ethernet)			
Installation method		DIN-Rail mounting			
Operating temperature		-25°C ~ +75 °C			
Power input		PoE/DC			
Built-in Web configuration interface		Yes(Ethernet)			



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