LANBAO

Mark sensor SPM series

Operation manual

Precautions

- Please make sure that the power supply voltage is within the rated value before powering on
- The sensor can be detected normally until 100ms after the power is turned on
- When using different power sources for the sensor and load, be sure to turn on the power of the sensor first
- When the sensor is not used, it is recommended to cut off the power of the load first and then turn off the power of the sensor
- Do not subject the sensor to severe external forces (such as hammer hits, etc.) during installation, so as not to damage the sensor performance
- Avoid using thinner, alcohol or other organic solvents when cleaning

Safety Warning

- Do not use in an environment with flammable, explosive or corrosive gases
- Do not use in oil or chemical environments
- Do not use in a high humidity environment
- Do not use in direct sunlight
- Do not use in other environmental conditions that exceed the rated value
- Do not disassemble, repair or modify this product without authorization

Scrap Treatment

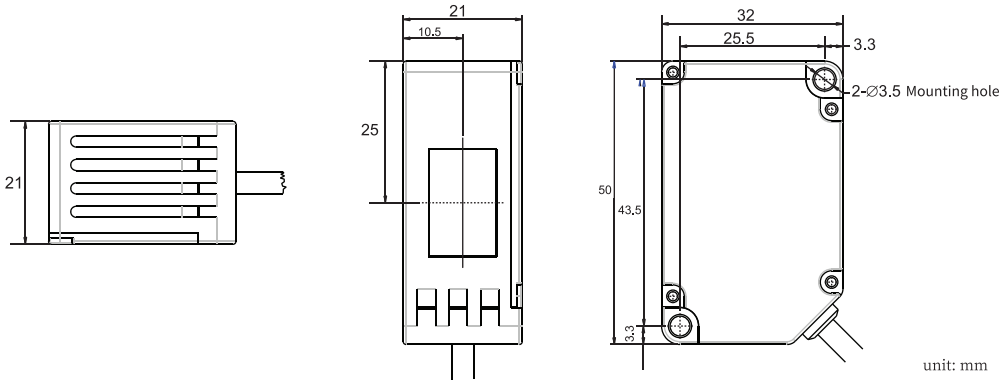
- When the product is scrapped, please dispose of it as industrial waste

Technical specifications

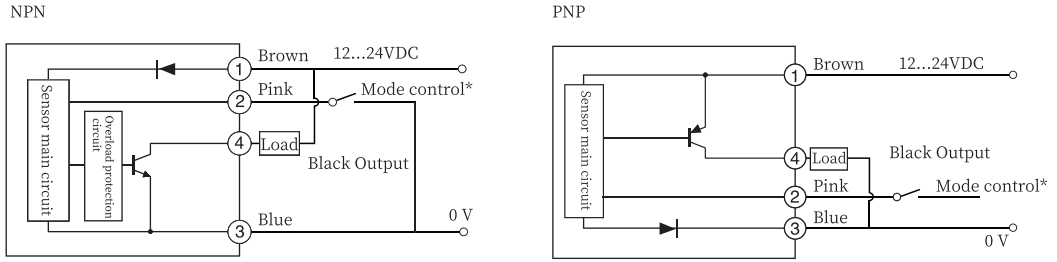
Type	NPN	PNP
Model	SPM-TNR-RGB	SPM-TPR-RGB
Detection distance	18…28mm	
Supply voltage	24VDC±10% Ripple(P-P):＜10%	
Light source	Composite LED:Red/Green/Blue(Lightsource wave length:640nm/525nm/470mm)	
Consumption current	Power＜850mW(Supply voltage is 24V,Consumption current＜35mA)	
Mode switch input	Color mark mode:Low(ON)0 to 0.6VDC;Leakage current is below 0.5mA;Input impedance is about 10kΩ; Color mode:High(OFF)12 to +VDC or open	Color mark mode:Low(OFF)0 to 0.6VDC or open; Color mode:High(ON)12 to +VDC;Leakage current is below 3mA;Input impedance is about 10kΩ.
Output type	NPN open-collector transistor:the max input current is 50mA;The applied voltage is below 30VDC(Between output and 0V);Residual voltage is less than 1.5V(When input current is 50mA)*	PNP open-collector transistor:the max input current is 50mA;The applied voltage is below 30VDC(Between output and +V);Residual voltage is less than 1.5V(When input current is 50mA)*
Output operation	Color mark mode:ON when color mark detection;Color mode:ON when consistent	
Circuit protection	Short circuit protection	
Response time	＜200μs	
Ambient temperature	-10…55℃(No frost、No condensation)	
Environment humidity	35…85%RH(No condensation)	
Housing material	Housing:PBT; Operation panel:PC; Operation button:Silica gel; Lens:PC	
Connection	2m cable(0.2mm² 4-pin cable)	
Weight	About 104g	

*Specified measurement conditions: ambient temperature +23℃

Dimensions



Wiring diagram



*Note:When the pink line is disconnected(OFF), it's color mode;When the pink line is connected(ON), it's color mark mode.

Operation setting teaching method

- Before performing teaching settings, confirm the color mark mode or color mode settings first. "COLOR" green indicator light is always on for color mode, and off for color mark mode.

Two-point teaching setting method

① The light projected by the sensor presses the "ON" button against the color to be measured, and the "GOOD" green indicator light flashes.
② The light projected by the sensor presses the" OFF" button against the background color.
③ When the threshold value set between steps ① and ② can be detected stably, the green indicator light of "GOOD" is always on, indicating that the detection can be started normally.
When the threshold value set between steps ① and ② cannot be detected stably, "ERR" red indicator flashes for 3 seconds and then returns to the last setting state.

Threshold hysteresis adjustment

①Press the "ON" button for more than 5 seconds until the ERR、GOOD、COLOR indicators flash simultaneously.
②Press the "OFF" button to adjust the return difference.

The relationship between hysteresis status and indicator flashing is as follows:

Status	Indicator	Three indicator lights flashing state
Hysteresis value small	○ ○ ●	Only COLOR indicator light flashing
Hysteresis value medium	○ ● ●	GOOD、COLOR Two indicators flashing at the same time
Hysteresis value large	● ● ●	ERR、GOOD、COLOR Three indicators flashing at the same time

Exit from threshold hysteresis adjustment

In the case of threshold hysteresis adjustment, press the ONbutton for more than 5 seconds until the ERR、GOOD、 COLOR three indicators stop flashing , that is exit from the threshold hysteresis adjustment.

About the error message

When an error message appears, handle it as follows

Indicator Status	"ERR" The red indicator is always on and will not go out automatically
Error message content	The load on the output line is short-circuited and overcurrent flows
deal with	After turning off the power,check the load of output

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