LANBAO

Color Sensor CPES series

Operation manual

www.lanbaosensor.cn

Precautions

- Please make sure that the power supply voltage is within the rated value before powering on
- The time from powering-on to normal detection of the sensor is 100ms, please ensure that the sensor is used after 100ms of powering-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

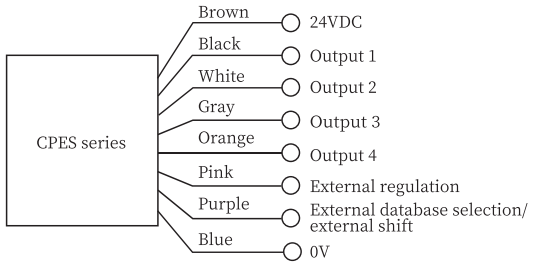
Safety Warning

- 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

Wiring diagram



Technical specifications

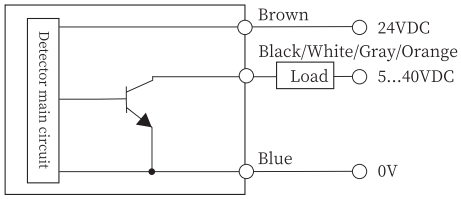
Amplifier		
Model	NPN	CPES-TNB
	PNP	CPES-TPB
Response time		200μS(HIGH SPEED)/1ms(FINE)/4ms(TURBO)/8ms(SUPER)
Control output		NPN(PNP)Open collector X4 channel,max 40VDC(30VDC),1 output reaches 100mA, A total of 4 outputs reach 200mA,residual voltage:1V max
Circuit protection		Short-circuit protection,Reverse polarity protection,Zener protection
External calibration input		Input time:⩾20ms
External switching input(C/C+I mode)		Input time:⩾20ms
External offset input(Super I mode)		Input time:⩾20ms
Timer function		Timer OFF/OFF-delay/ON-delay/single trigger,timer time is adjustable from 1 to 1,000ms (For each domain separately)
Supply voltage		24VDC,Ripple(P-P):⩽10%
Consumption current		Normal mode:1.5W(⩽62.5mA),Eco mode:1W(⩽42mA)
Ambient temperature		-10…55℃(No condensation)
Vibration resistance		10…55Hz,dual amplitude 1.5mm(2 hours each for X,Y,Z direction)
Material		Housing,cover:PC
Weight		About 150g(Contains 2m cable)

Detection head	
Model	CPES-C09
Detection range	11…20mm
Min spot diameter	1mm@16mm
Light source	Composite LED:Red/Green/Blue(Lightsource wave length:665nm/520nm/465mm)
Minimum bending radius	R25mm
Ambient luminosity	Incandescent:⩽1,000lux;Daylight:⩽20,000lux
Ambient temperature	-10…55℃(No condensation)
Vibration resistance	10…55Hz,dual amplitude 1.5mm(2 hours each for X,Y,Z direction)
Protection degree	IP40
Material	Body:PC;Lens cover:Polyarylate
Weight	About 40g(Contains 2m cable)

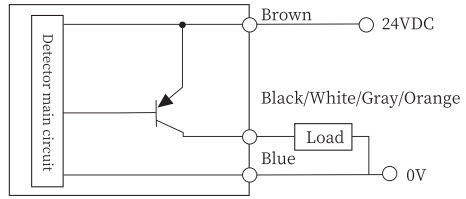
Circuit diagram

Output circuit

CPES-TNB



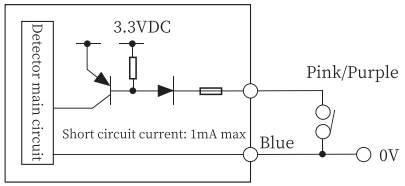
CPES-TPB



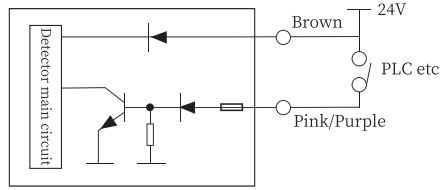
Input circuit

External regulation(Pink) External database selection/external shift(Purple)

CPES-TNB

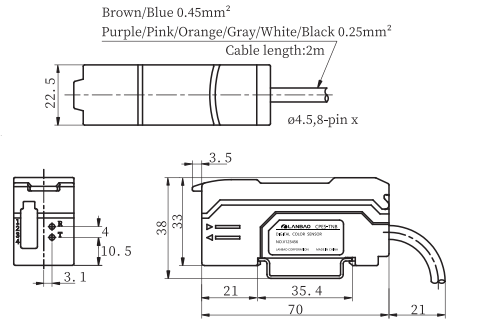


CPES-TPB



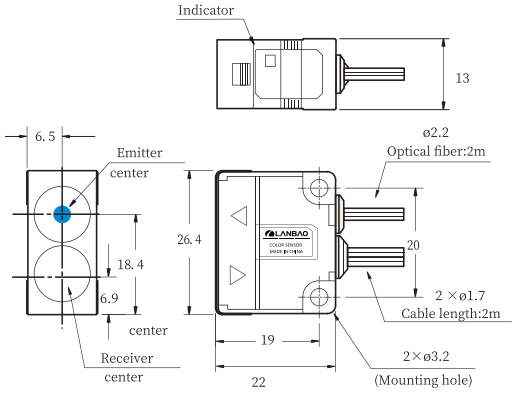
Dimensions

Amplifier



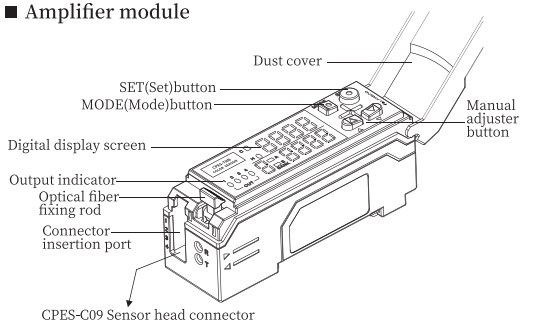
unit:mm

Detection head

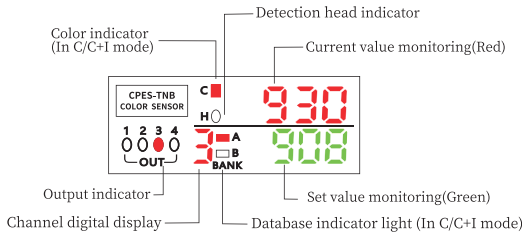


unit:mm

Amplifier module



Display dimension



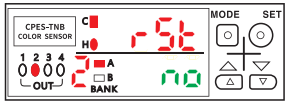
Default mode setting (Initialization)

Access mode	EASY
Function(Detection function)	C mode
Tuning mode	Single-point tuning
Power mode(Response time)	TURBO
Output mode	No(L-on)
Timer mode	OFF(Timer value 20ms)
Energy saving function(Eco mode)	OFF
Shift function	OFF(Shift value 0)

Restore to default setting

1.While holding down the MODE button, press the SET button five times

- The monitor displays "rSt/no"



2.Press the UP button

- The monitor displays"rSt/YES"

3.Press and hold the MODE button

- The detector returns to the default state

To cancel the reset operation, select "no" in step 2 and press the MODE button

External input

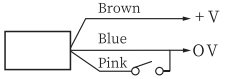
- Set sensitivity through external input (External tuning)

(1).Activate the key lock capability

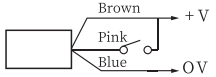
(2).Connect the purple wire to an external device, such as a switch or PLC

(3).Short-circuit the pink wire as shown in the figure below,because each model is equivalent to pressing the SET button operating

CPES-TNB



CPES-TPB



The shortest input time is 20ms

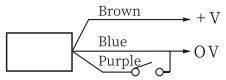
- Select the database through external input (In C/C+1 mode)

(1).Activate the key lock capability

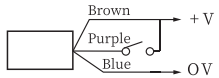
(2).Connect the purple wire to an external device, such as a switch or PLC

(3).Short-circuit the purple line as shown in the figure below to switch the database from A to B for each model(When the input signal is ON (open), the database is set to B)

CPES-TNB



CPES-TPB



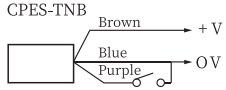
The shortest input time is 20ms

- External input shift input (Super I mode setting)

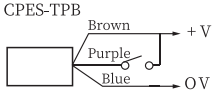
(1).Connect the purple wire to an external device, such as a switch or PLC

(2).Short-circuit the purple wire as shown in the figure below to enable shift input for each model(The rising edge of the input signal performs the shift input)

CPES-TNB



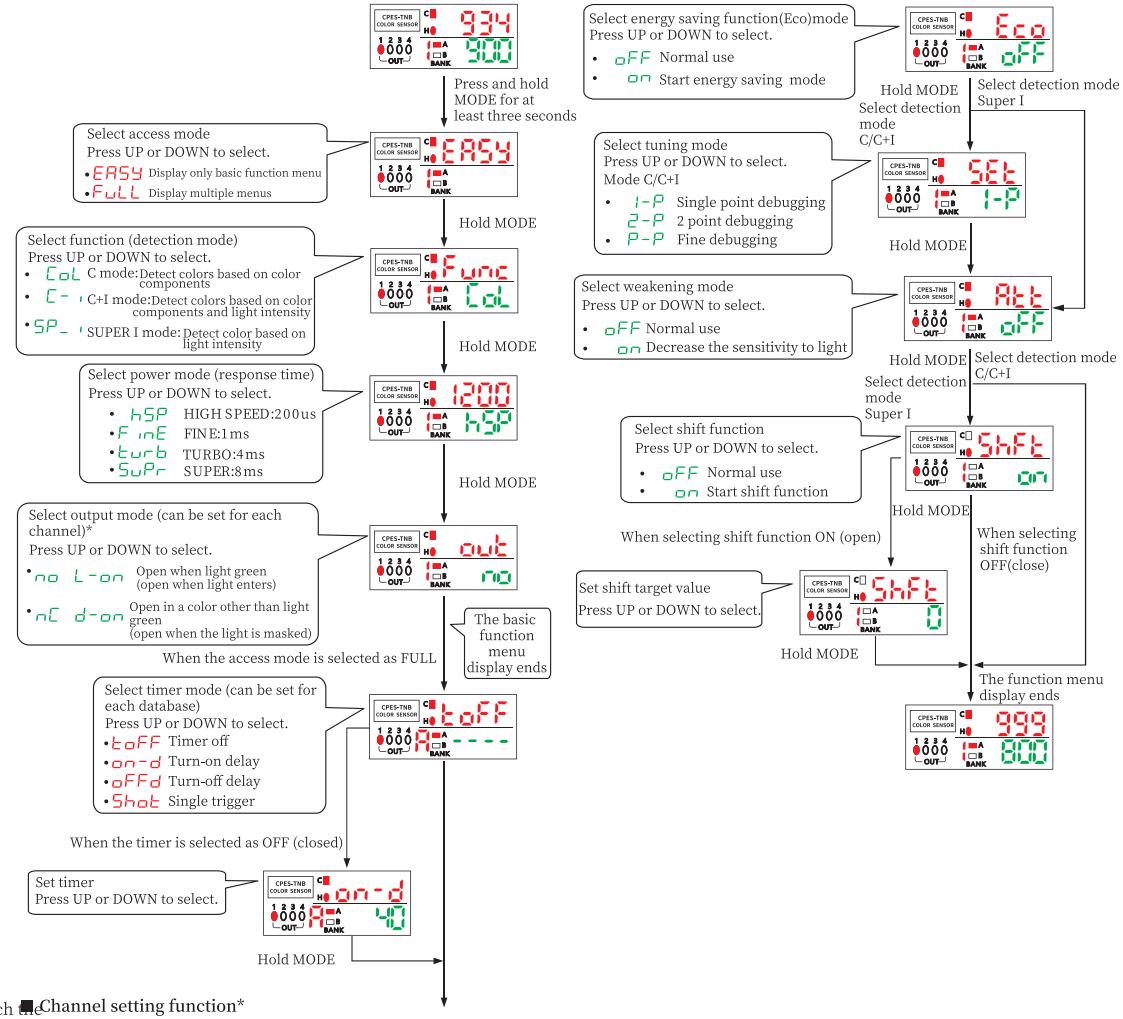
CPES-TPB



The shortest input time is 20ms

Menu selection

Press and hold the MODE button for at least three seconds, the function menu will be displayed. Each mode can be configured from the function menu. To exit the menu during the setting process, press and hold the MODE button again for at least three seconds.



Channel setting function*

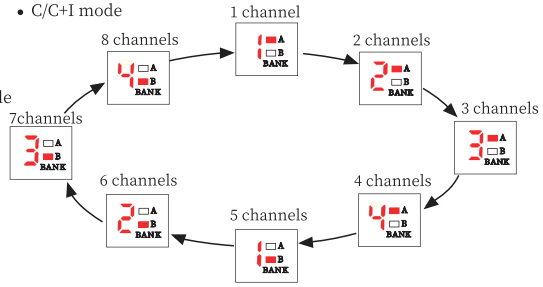
The sensitivity can be set for each channel of the following number according to the detection mode.

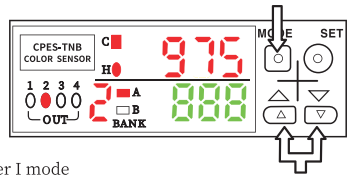
- C/C+I mode: 8 channels (4 channels × 2 databases)
- Super I mode: 4 channels (No database selection)

The steps for selecting the display channel are as follows:

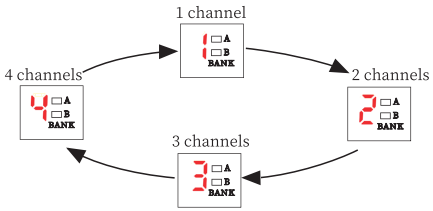
While holding down the MODE button, press the UP or DOWN button

- C/C+I mode





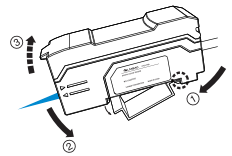
- Super I mode



Installation Precautions

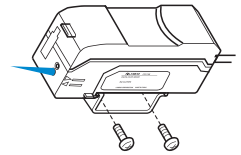
- Mounted on DIN rail

Hook the claw of the bottom of the amplifier module to the DIN rail. While pushing the amplifier module in the direction of arrow 1, push down in the direction of arrow 2 to remove the amplifier module. While pushing the body in the direction of arrow 1, lift the body in the direction of arrow 3.



- Install on the bracket

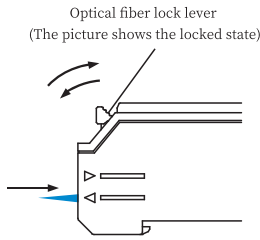
Install the amplifier module using the provided mounting bracket as shown in the figure.



- Insert the connector and fiber

(1).Tilt the optical fiber fixing rod and insert the optical cable: when using CPES-C09, only insert the optical cable into the light-emitting hole;Please confirm the deepest part of 20mm (Insertion length: about 20mm), and lock the optical cable with the fixing rod.

(2).When using CPES-C09, insert the connector of the sensor head into the corresponding connector port.



CPES-2022LB V1.0

Shanghai Lanbao Sensing Technology Co.,Ltd.
Address: No 228,Jinbi Road,Jinhui Industrial Park,Fengxian Area,Shanghai,China
Zip code: 201404
TEL: 021-57486188 57486181
FAX: 021-57486199
Email: market@shlanbao.cn
Hotline: 800-820-8259