Fiber sensor amplifier

FM-E31 series

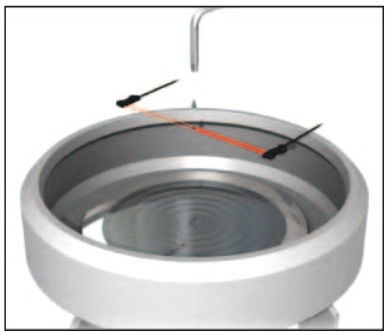
High speed



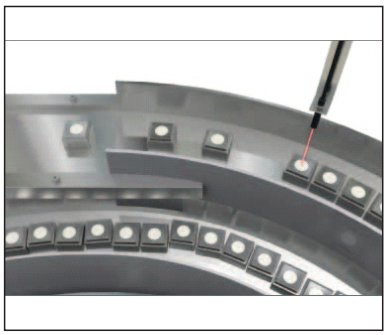
Product characteristics

- Four speeds can be selected
  （MEGA\SUPER\FINE\HIGH SPEED）;
- Functions:
  countcing/zero point/percentage/Anti light interference/rising edge and falling edge DTM /value amplification/NO/NC interchange/time delay
- Max. speed 50μs;
- Perfect circuit protection;
  Reverse electrode, over-voltage and over-current protection.
- Stable performance, super cost performance.

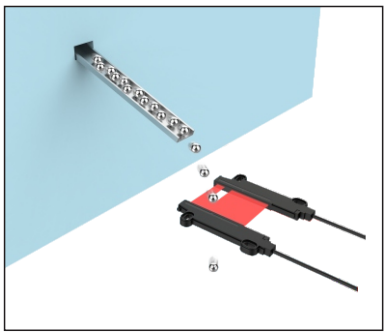
Application



Detecting falling water droplets



Detect the front and back of LED



Accurate detection and counting of small objects in the region

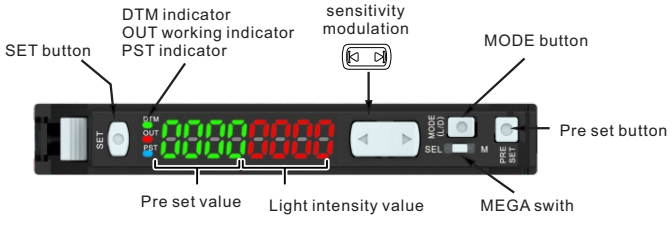
Product specifications

Parameters of intelligent digital optical fiber sensor

Model	NPN	FM-E31
	PNP	FM-E31P
Conection		Cable
Light source		650nm red LED
Reaction time		Anti oFF: 50μs(HIGH SPEED) / 250μs(FINE) / 1ms(SUPER) / 16ms(MEGA)
Output		LIGHT-ON/DARK-ON
Delay function		Off delay timer / on delay timer / single time timer
Control output	NPN	NPN Open-collector 24V; Maximum output value: 100mA, residual Voltage 1.5V
	PNP	PNP Open-collector 24V; Maximum output value: 100mA, residual Voltage 1.5V
Protection circuit		Reverse electrode protection (power supply), over-current protection (output), over voltage protection (output)
Power voltage		Between 12 and 24VDC ± 10%, the fluctuation ratio (P-P) : max.10%.
Current consumption*	NPN	Normal: max.900mW（when 24V, max.20mA;when 12V:max.40mA） Energy saving mode: max.800mW（when 24V, max.18mA;when 12V:max.36mA）
	PNP	Normal: max.950mW（when 24V, max.20mA;when 12V:max.40mA） Energy saving mode: max.850mW（when 24V, max.18mA;when 12V:max.36mA）
Ambient brightness		incandescent lamp: max. 20,000lux, fluorescent lamp: max. 30,000lux
Ambient temperature		-20 to +55 no freezing
Ambient humidity		35 to 85%RH no condensing
Vibration resistance		10 to 55Hz, complex amplitude 1.5mm, each 2 hours for X/Y/Z axis
Impact resistance		500 m/s², each 3 times for X/Y/Z axis
Material		Polycarbonate
Dimensions		30.3mmX9.8mmX71.8mm
Weight		about 66g

Component name

Name of each part



Fiber sensor amplifier

FM-E21/E21M /E25 High precision



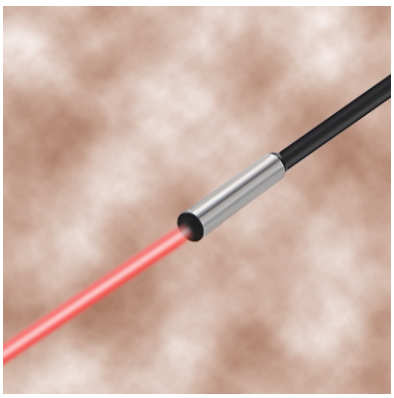
Product characteristics

- One key setting



- High power mode, reduces manual adjustment time;

  MEGA mode, The ultimate goal is to reduce the user's manual time in maintenance and setup.



- Super functional combination;

  Automatic optical gain, count, zero shift, percentage, anti-interference, zone DTM, NO/NC interchange, time delay and other functions.

- Four application modes can be selected flexibly;

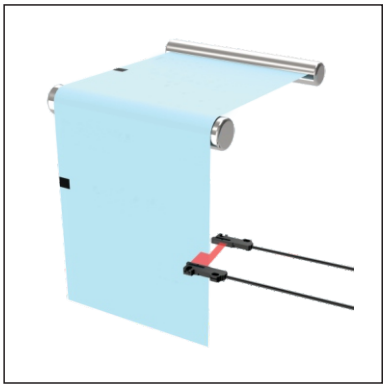
  （MEGA\SUPER\FINE\HIGH SPEED）;

- Max. 100μs high speed;

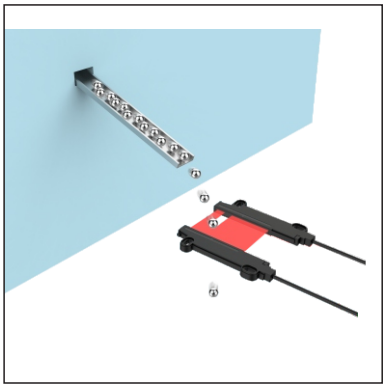
Application



Detect the front and back of LED



Detect the offset of packaging materials



Accurate detection and counting detection of small objects in 40mm detection area

Product specifications

Parameters of high precision digital optical fiber sensor

Type		Single outpu	Dual switching output	Analog output
Model	NPN	FM-E21	FM-E25	FM-E21M
	PNP	FM-E21P	FM-E25P	FM-E21MP
Light source		Red LED		
Reaction time		Anti oFF: 100μs(HIGH SPEED) / 250μs(FINE) / 1ms(SUPER) / 8ms(MEGA) Anti on: 300μs(HIGH SPEED) / 500μs(FINE) / 2ms(SUPER) / 16ms(MEGA) Anti stAG: (S1, S2, S3, S4) 1ms		
Output selection		LIGHT-ON/DARK-ON		
Detection mode		Light intensity (area detection, automatic sensitivity tracking function)		
Delay function		Off delay timer / on delay timer / single time timer		
Control output		Open collector: 24 V, maximum output: 100mA, residual voltage: 1V		Open collector circuit: 24 V, maximum output value: 100 Ma, residual voltage: 1.5 V maximum
Power		Between 12 and 24VDC ± 10%, the fluctuation ratio (P-P) : max.10%.		
Current consumption	NPN	Normal: max.900mW（when 24V, max.20mA;when 12V:max.40mA） Energy saving mode: max.800mW（when 24V, max.18mA;when 12V:max.36mA）		
	PNP	Normal: max.950mW（when 24V, max.20mA;when 12V:max.40mA） Energy saving mode: max.850mW（when 24V, max.18mA;when 12V:max.36mA）		
Ambient temperature/humidity		-20 to +55℃（no freezing）/ 35 to 85%RH（no condensing）		
Vibration resistance		10 to 55Hz, complex amplitude 1.5mm, each 2 hours for X/Y/Z axis		
Impact resistance		500 m/s², each 3 times for X/Y/Z axis		
Material		Polycarbonate		
Dimensions		30.3mm(H)X9.8mm(W)X71.8mm(D)		
Weight		About 85g		

Product category

Type	appearance	Specification and model		switching output	Analog output
		NPN	PNP		
single switching output		FM-E21	FM-E21P	1	0
Dual switching output		FM-E25	FM-E25P	2	0
Analog and switching output		FM-E2MN	FM-E21MP	1	1