

TF03-180 is an industrial-grade long-range LiDAR. Its maximum detection range can reach 100m. With integrated compensating algorithm for outdoor glare and other interference, TF03-180 can work under strong light environment and rain, fog and snow conditions<sup>1</sup>. Multiple built-in operating modes let customers to change its parameters and configuration to meet different applications.



### Main product features

- High frame rate
- IP67 protection
- Small size
- Various interface

### Main application scenarios

- Vehicle collision avoidance and safety warning
- Traffic flow statistics
- Camera trigger
- UAV assisted takeoff and landing

## SPECIFICATIONS

Parameters		Standard version	RS485/RS232 version
Product performance	Operating range	0.1-180m@90% reflectivity 0.1-70m@10% reflectivity 0.1-130m@90% reflectivity&100Klux 0.1-50m@10% reflectivity&100Klux	
	Accuracy <sup>2</sup>	±10cm (within 10m), 1% (10m and further)	
	Distance resolution	1cm	
	Frame rate <sup>3</sup>	1Hz~1000Hz adjustable (default 100Hz)	
	Repeatability	1σ: <3cm	
	Ambient light immunity	100Klux	
	Operation temperature	-25~60°C	
	Enclosure rating	IP67	
Optical parameters	Light source	LD	

<sup>1</sup> Rain, snow and fog conditions generally refer to moderate rain, snow and below. Moderate rainfall < 25mm/24h or < 7.9mm/h

<sup>2</sup> The detection range is measured at temperature of 25°C. Accuracy and repeatability are measured with white board (90% reflectivity).

<sup>3</sup> The highest frame rate can be customized to 10KHz, please contact us for detailed information.

	Central wavelength	905nm	
	Photobiological safety	Class1 (EN60825)	
	FOV <sup>4</sup>	0.5°	
<b>Electrical parameters</b>	Supply voltage	5V~24V	
	Average current	≤150mA @ 5V, ≤80mA @ 12V, ≤50mA @ 24V	
	Power consumption	≤1W	
	peak current	150mA	
	Communication interface level	LVTTL (3.3V)	RS485/RS232
	Communication interface	UART/CAN	RS485/RS232
<b>Others</b>	Dimension	44mm*43mm*32mm(L*W*H)	
	Enclosure material	Aluminum alloy	
	Storage temperature	-40~85°C	
	Weight	89g±3g	92g±3g
	Cable length	70cm	

## ■ DIMENSIONS

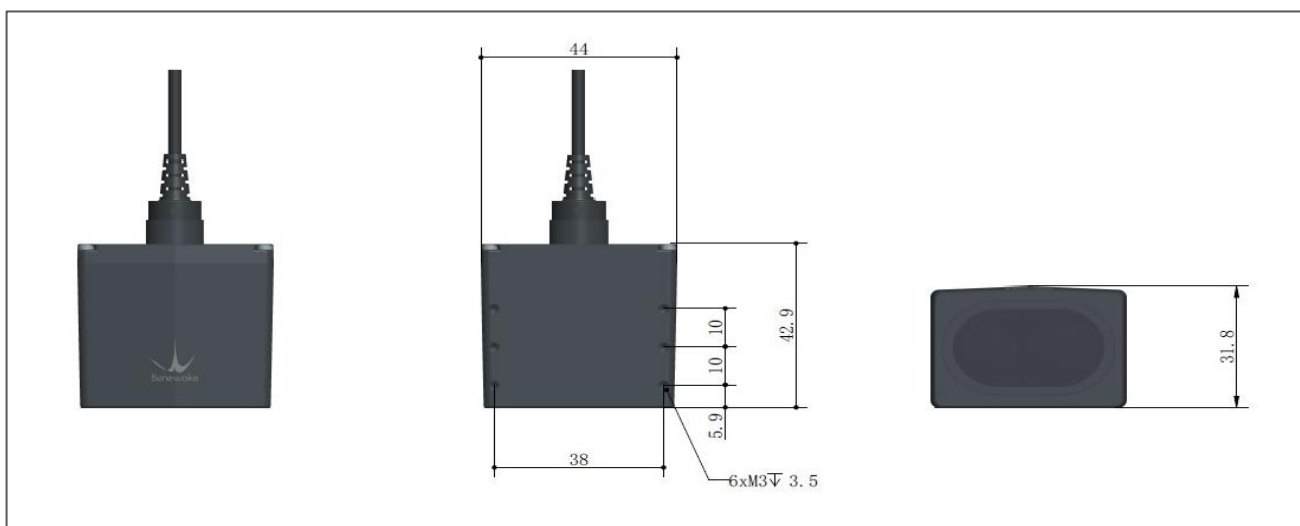


Figure 1 TF03-180 dimensions (Left 1: top view; Left 2: upward view; Left 3: front view) Unit: mm

<sup>4</sup> FOV, field of view, consists of vertical angle and horizontal angle.

### ■ COMMUNICATION INTERFACE

Parameters	UART/RS485/RS232
<b>Baud rate</b>	115200
<b>Data bit</b>	8
<b>Stop bit</b>	1
<b>Checksum bit</b>	N/A

Parameters	CAN
<b>Baud rate</b>	1000kbps
<b>Data bit</b>	0x3003
<b>Stop bit</b>	0x3
<b>Frame format</b>	Standard frame <sup>5</sup>

### ■ CONFIGURABLE PARAMETERS

Table 1 Configurable parameters example

Configurable parameters	Description	Default setting
<b>Frame rate</b>	Output frame rate could be configured by related command, range 1~1000Hz <sup>6</sup>	100Hz
<b>Communication interfaces</b>	UART/CAN can be switched with command	UART
	RS485/RS232 can be switched with command	RS485
<b>Baud rate</b>	a) Serial port baud rate could be customized b) CAN port baud rate could be customized, CAN ID could be modified	/
<b>Restore default</b>	TF03-180 can be restored to the factory settings	/
<b>Save configuration</b>	After defining the configuration parameters, you can send the corresponding command to choose to save the configuration permanently	/

*Note: for more configurable parameters and instructions, please refer to the user manual.*

<sup>5</sup> Please check Product manual for detailed information.

<sup>6</sup> The highest frame rate can be customized to 10KHz, please contact us for detailed information.

### ■ WIRING

Since the product upgrade in Aug. 2020, TF03's wiring has also been upgraded.

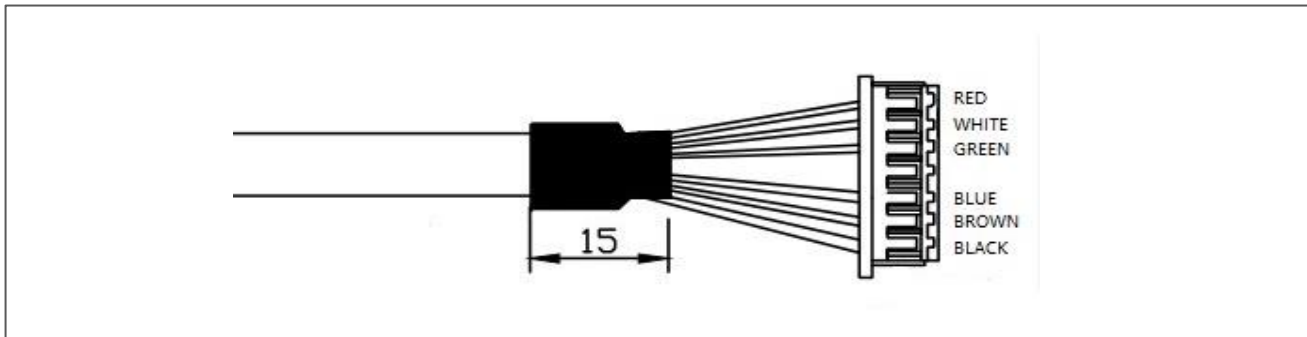


Figure 2 Wiring of new version TF03-180

Below is new version TF03's pin definition and function description.

No.	Color	Standard version		RS485 version	
		PIN definition	Function	PIN definition	Function
1	Red	VCC	Power supply	VCC	Power supply
2	White	CAN_L	CAN_L	RS485-B/RS232-RX	RS485-B/RS232 receive
3	Green	CAN_H	CAN_H	RS485-A/RS232-TX	RS485-A/RS232 transport
4	/	/	/	/	/
5	Blue	UART_RX	UART receive	UART_RX	UART receive(debug) <sup>7</sup>
6	Brown	UART_TX	UART transport	UART_TX	UART transport(debug)
7	Black	GND	Ground	GND	Ground

### ■ CERTIFICATIONS



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<sup>7</sup> The UART interface of TF03-100 RS485 version is debugging interface. It cannot be used to read detection data.