Laser Displacement Sensors with Triangulation

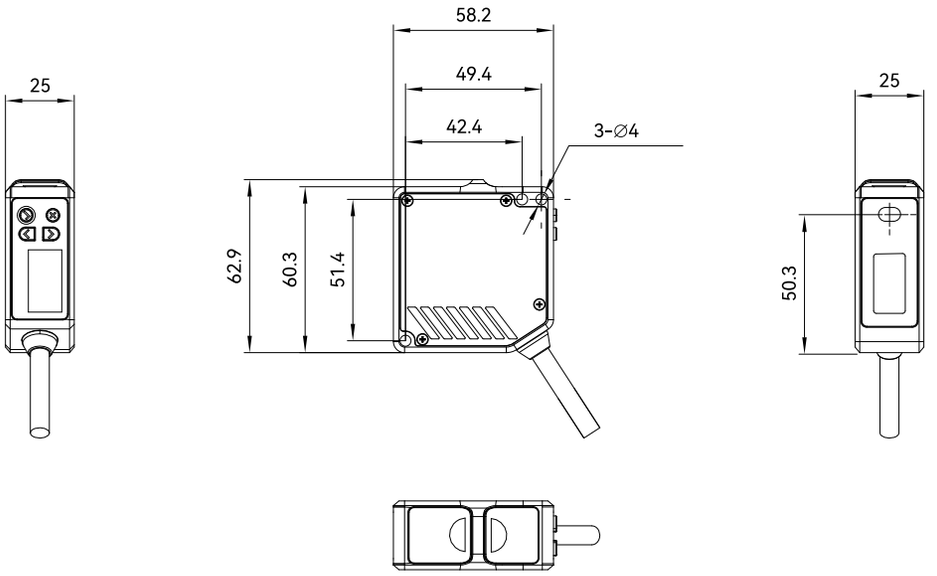
MLD35

Basic Features	Working Principle	Triangulation					
	Housing Style	Square					
	Working Principle	Diffuse Reflection					
	Reference (Center) Distance	30mm	50mm	85mm	120mm	250mm	
	Measuring Range	25~35mm	40~60mm	65~105mm	60~180mm	100~400mm	
	Full Scale (F.S.)	10mm	20mm	40mm	120mm	300mm	
	Linearity	±0.07%F.S.			±0.08%F.S.	±0.15%F.S.	
	Repeatability Accuracy	4um	8um	15um	45um	100um	
Electrical Data	Temperature Drift Characteristic	±0.08%F.S./ °C					
	Light Source	Red semiconductor laser, Class 2 (Projection peak wavelength: 655nm, maximum output: 1mW)					
	Beam Spot Size*2	0.2x0.17mm	0.4x0.1mm	0.6x0.3mm	1.1x0.5mm	0.7x0.4mm	
	Input Function — IN1 IN2 IN3	· Through settings, the following functions can be switched: trigger, zero adjustment, measurement value reset, laser emission stop, teach, and storage bank switching. · The input condition is interlocked with the NPN/PNP setting of the control output. When NPN output is selected: · Sinking current: approx. 1.5 mA · Input condition Inactive: 3 V to 26.4 V DC or open Active: 0 V DC to 1.5 V DC When PNP output is selected: · Sourcing current: approx. 2.5 mA · Input condition Inactive: 0 V to 11 V DC or open Active: 19 V DC to 26.4 V DC					
	Output — Digital Output (OUT1/OUT2/OUT3)	The three channels can be switched between NPN open collector transistors / PNP open collector transistors through configuration. The outputs can be configured to switch between judgment outputs or warning outputs.					
	Output — Analog Output	It can be switched between analog voltage / analog current output modes through settings.					
	Output — Communication	RS-485 Baud Rate：9,600/19,200/38,400/115,200/230,400/460,800/921,600bps Default：115,200bps Data Length：8bit Stop Bit Length: 1 bit / 2 bits (Default: 1 bit) Parity Type: None / Even / Odd (Default: None) Supported Protocol: Modbus-RTU					
	Indicator Lights — Green LED	Illuminates when the laser is emitting.					
	Indicator Lights — Orange LED	Illuminates when measurement is impossible due to insufficient light, excessive received light, or excessive ambient light interference. Flashes during short-circuit protection.					
	Device Display	0.96-inch OLED					
	Sampling Cycle	100us/200us/500us/1ms/2ms					
	Operating Voltage	12~24VDC±10%					
	Current Consumption	≤100mA@24V					
	Load Current	≤100mA					
	Residual Voltage	<1.5V@100mA					
	Protection Circuit	Reverse Polarity Protection / Short Circuit Protection / Surge Protection / Overload Protection					
Environmental Conditions	Operating Temperature	–10℃~+45℃(no freezing)					
	Storage Temperature	–20℃~+60℃(no freezing)					
	Operating Humidity	35~85RH(no condensation)					
	Storage Humidity	35~95RH(no condensation)					
	Ambient Illumination*3	Incandescent light ≤ 3000 Lux; Sunlight ≤ 10000 Lux					
	Vibration Resistance	10~55Hz sweep frequency, 1.5mm amplitude, 2 hours each in X, Y, Z directions					
	Enclosure rating	IP67					
Mechanical Data	Connection Method	2m/13-core cable					
	Dimensions	62.9*58.2*25mm					
	Material	Material: Housing: Aluminum alloy					
	Weight	Approximately 220g					
	Model	MLD35-30NPVA4	MLD35-50NPVA4	MLD35-85NPVA4	MLD35-120NPVA4	MLD35-250NPVA4	

(Note 1): When measurement conditions are not explicitly specified, the following conditions are used: power supply voltage: 24V DC, ambient temperature: 20°C, sampling cycle: 500μs, averaging count: 1,024 times, measuring the center distance, target object: white ceramic, analog output off.
(Note 2): Values at the measurement center distance. These values are defined by the $1/e^2$ (approximately 13.5%) intensity of the central beam. If there is light leakage outside the defined range and the reflectivity at the periphery of the detection point is higher than at the detection point itself, the results may be affected. (Data measured using laboratory beam quality analysis equipment.)
(Note 3): Fluctuation due to ambient illumination is ±0.1% F.S. or less.

Dimensions

Unit: mm



Circuit diagram