

# Ultrasonic sensors

06.2023/ Version 1.0  
11723588

## U300



EN  
DE  
FR  
IT  
ES  
CN

IO-Link Process Data Input									
IntegerT(32)	IntegerT(8)	8 bit							
Measurement Data Channel (MDC)	Scale	Baumer specific							
		7	6	5	4	3	2	1	0
		SSC4			Alarm	Quality	SSC2	SSC1	

SSC1/2/4: Switching Signal Channels  
MDC: Distance Value or Switch Counter (selectable)  
Quality: The quality bit signals a weak echo signal  
Alarm: The alarm bit signals a problem with the configuration or the functionality of the sensor  
Scale: Factor by power of ten, applicable to the value of the Measurement Data Channel (MDC)

**Available Commands:**  
Teach-in commands, sensor element on/off, Find Me (Locating sensor) and more

**Available Parameters:**  
Switching point, switching hysteresis, output function, time filters, beam forming, measured value filtering, analog output characteristic, LED status indicators and more

**Available Additional Data:**  
Switch counter, boot cycles, operation hours, device temperature, operating voltage, histograms

qTarget®  
qTeach®

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# Models with IO-Link

# Alignment Aid

Retro-reflektive Sensoren und Einwegschränken (.R und .E/.T) verfügen über eine Ausrichthilfe. Diese ist im Teach Level 1 integriert und zeigt die Stärke des empfangenen Signals an.

Retro-reflective and through beam version (.R and .E/.T) are equipped with alignment aid, which is integrated in Teach Level 1. The Alignment aid indicates the strength of the received signal.

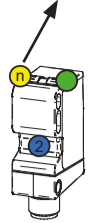
Les versions barrières réflex et barrières simples (R et E/R) sont équipées d'un outil d'aide à l'alignement, qui est intégré au niveau 1 de la procédure de teach. L'aide à l'alignement indique la force du signal reçu.

Le version a retroriflessione e sbarramento (.R e .E/.T) sono dotate di indicazione di corretto allineamento integrata nel Teach-in al livello 1. Questa funzione indica l'intensità del segnale ricevuto.

Las versiones retrorreflektiva y de barrera (.R y .E/.T) están equipadas con una ayuda de alineado integrada en el Nivel 1 de Teach. La ayuda de alineado indica la potencia de señal recibida.

镜反射和对射版本 (.R和.E/.T) 的传感器配备了对准辅助功能,集成在设定级别1中. 对准辅助表明了接收信号的强度.

Faster flashing  
→ stronger signal



Sensor ausrichten, schnelles Blinken, besserer Empfang

Align sensor, faster flashing, better reception

Aligner le capteur, clignotement plus rapide, meilleure est la réception

Allineamento del sensore: Più è veloce il lampeggiamento tanto più è forte il segnale

Sensor alineado, parpadeo más rápido, mejor recepción

对准传感器 · 闪烁越快 · 接收得更好

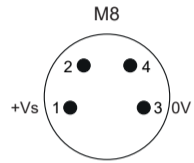
# Related Models

**U300 Models:**  
U300.R (Retro reflective version)  
U300.T/E (Through beam sensor (E-Receiver)(T-Emitter))

More information related to these products can be found on our website (CAD, Beamcharts, CoC, Drawings, IODDS ...)

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# Connection Diagrams



	Retro reflective version .R	Through beam version (E-Receiver) .E	Through beam version (T-Emitter) .T
1 - Brown BN		+Vs	
2 - White WH	n.c.	Push-Pull out 2	n.c.
3 - Blue BU		0 V	
4 - Black BK	IO-Link / Push-Pull out 1		n.c.

- Disconnect power before connecting the sensor.  
- Voltage supply according UL 1310, Class 2  
or device shall be protected by an external R/C or listed fuse, rated max. 30 VAC/3A or 24 VDC/4A

# Mounting Instructions

Mindestabstand zwischen zwei Sensoren

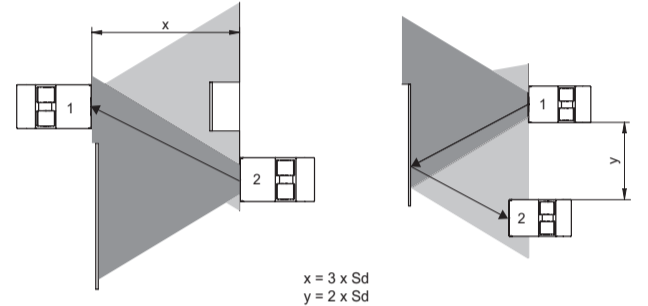
Minimal distance between two sensors

Distance minimale entre deux capteurs

Distanza minima tra due sensori

Distancia mínima entre dos sensores

传感器之间最小安装距离



# LED Indication

# Legend

- LED on
- LED flashing 1 Hz
- LED flashing 2 Hz
- LED flashing 8 Hz

# Operating Mode

LED Indicators	Green	Yellow	Red	Blue
Power on	LED on			
Short circuit	LED flashing 1 Hz			
Output 1 active		LED flashing 2 Hz		
Output 1 signal close to threshold		LED flashing 8 Hz		
Output 2 active			LED flashing 1 Hz	
Output 2 signal close to threshold			LED flashing 8 Hz	
qTeach not locked				LED on

Teach-in mode see Teach-in Instruction

Only sensors with 2 outputs do have a red LED

# LED Anzeige

# Legende

- LED leuchtet
- LED blinkt 1 Hz
- LED blinkt 2 Hz
- LED blinkt 8 Hz

# Betriebsmodus

LED Indikatoren	Grün	Gelb	Rot	Blau
Betriebsanzeige	LED on			
Kurzschluss	LED blinkt 1 Hz			
Ausgang 1 aktiv		LED blinkt 2 Hz		
Ausgang 1 Signal nahe der Schwelle		LED blinkt 8 Hz		
Ausgang 2 aktiv			LED blinkt 1 Hz	
Ausgang 2 Signal nahe der Schwelle			LED blinkt 8 Hz	
qTeach verwendbar				LED on

Teach-in Modus siehe Teach-in Anweisung

Nur Sensoren mit 2 Ausgängen verfügen über eine rote LED

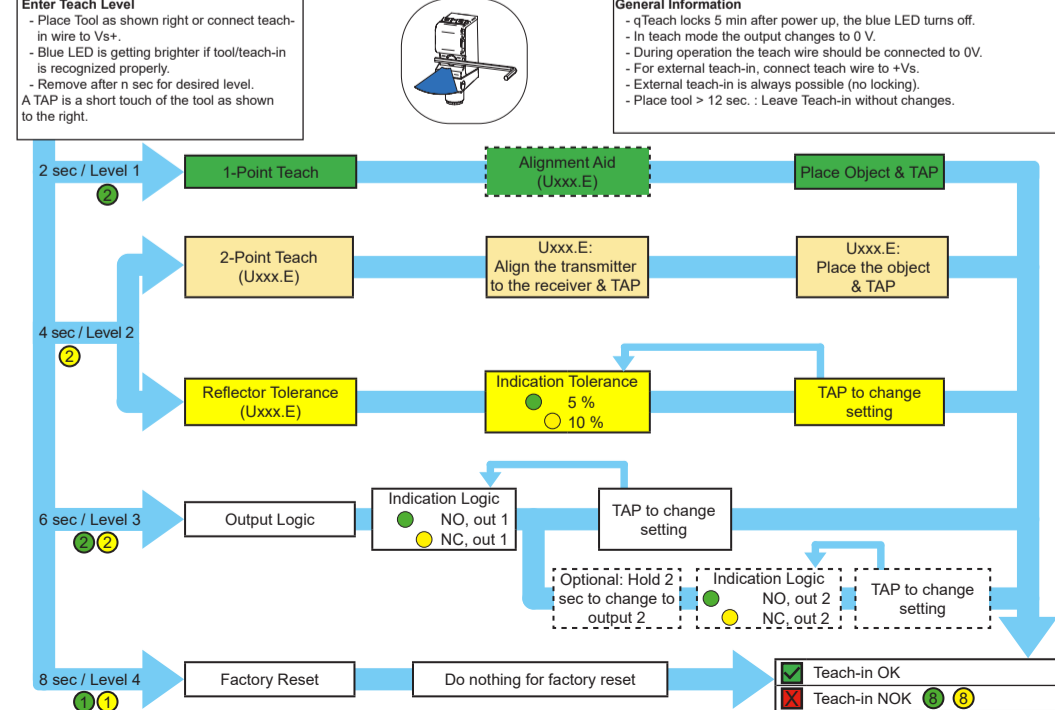
# Teach-In Description Level 1 & 2

	Uxxx.E	Uxxx.R
<b>Level 1</b>	<b>1-Point Teach</b> Sets the threshold as close to the measured value as possible 	<b>1-Point Teach Output 1</b> Teach-In the position of the Reflector (Distance) 
<b>Level 2</b>	<b>2-Point Teach</b> Sets the threshold in the middle of reflector and object SP = sqrt(TP1 * TP2) 	<b>Reflector Tolerance</b> Set the tolerance of the reflector position The reflector tolerance states the relative allowable variance of the reflector position. Example: Reflector Position of 500 mm ± 5% means the reflector position ranges from 475 mm to 525 mm. 

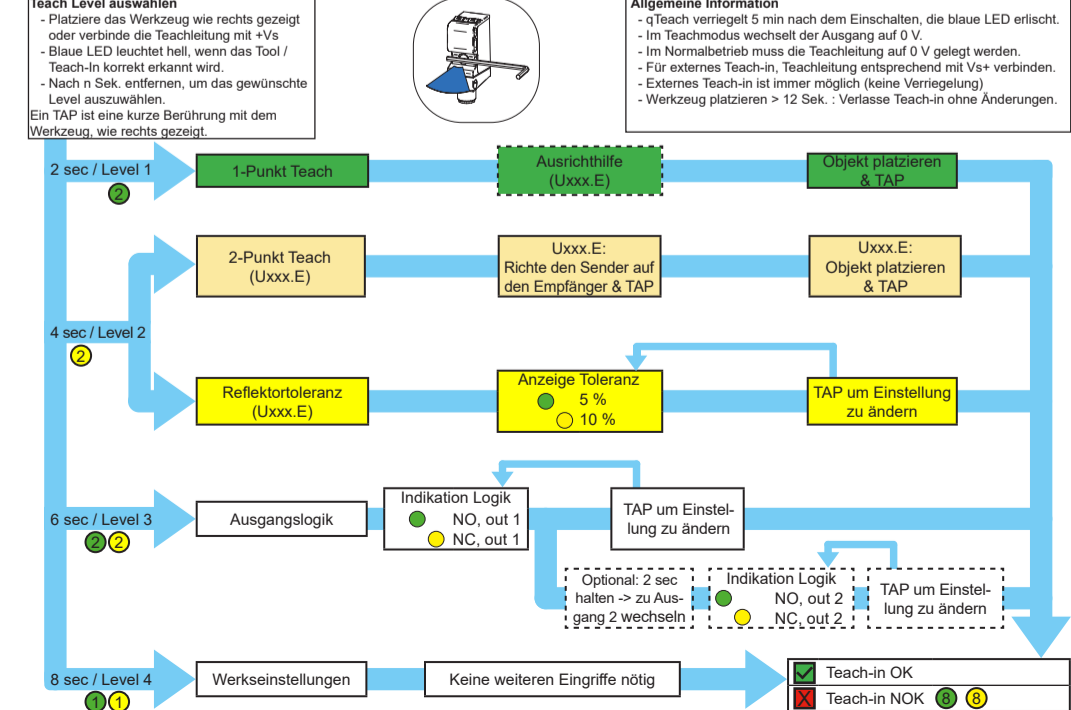
# Teach-In Beschreibung Level 1 & 2

	Uxxx.E	Uxxx.R
<b>Level 1</b>	<b>1-Punkt Teach</b> Setzt die Schaltschwelle so nah ans eingelernte Reflektorsignal wie möglich. 	<b>1-Punkt Teach Ausgang 1</b> Einlernen der Reflektordistanz 
<b>Level 2</b>	<b>2-Punkt Teach</b> Setzt den Schaltschwellenpunkt in die Mitte der eingelernten Signale SP = sqrt(TP1 * TP2) 	<b>Reflektortoleranz</b> Einstellung der Reflektortoleranz Die Reflektortoleranz beschreibt die relative, zulässige Varianz der Reflektorposition Beispiel: Bei einer Reflektorposition von 500 mm und einer Toleranz von ± 5% wird der Reflektor von 475 bis 525 mm erkannt. 

# Teach-in Instruction



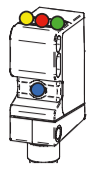
# Teach-in Anleitung



Indication LED

Légende

Mode de fonctionnement (FR)



- LED ON
- LED clignotante 1 Hz
- LED clignotante 2 Hz
- LED clignotante 8 Hz

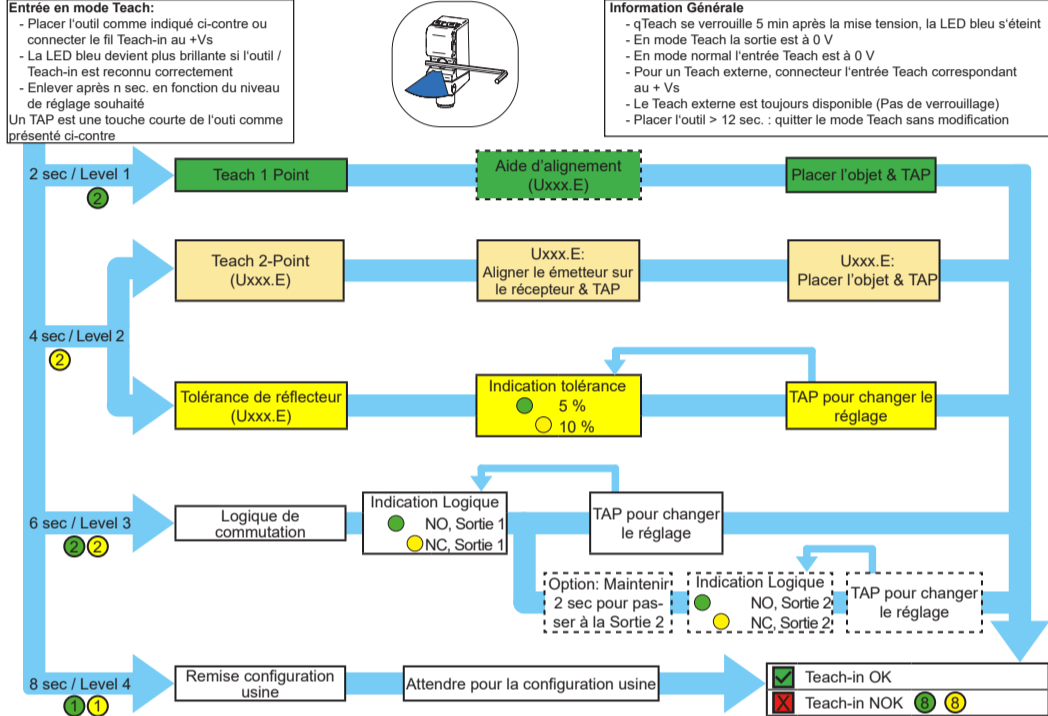
Indicateurs LED	Vert	Jaune	Rouge	Bleu
Power On	●			
Court-circuit	①			
Sortie 1 activée		●		
Sortie 1 signal proche du seuil		⑧		
Sortie 2 activée			●	
Sortie 2 signal proche du seuil			⑧	
qTeach disponible				●

● Seuls les détecteurs avec 2 sorties ont une LED rouge

Description Teach-In Niveau 1 & 2

	Uxxx.E	Uxxx.R
<b>Niveau 1</b>	<b>Teach 1-point</b> Apprendre le réflecteur et régler le seuil le plus sensible possible.	<b>Sortie 1: Teach 1 Point</b> Apprendre la position du réflecteur (Distance)
<b>Niveau 2</b>	<b>Teach 2-point</b> Régler le seuil au milieu du réflecteur et de l'objet $SP = \sqrt{TP1 \cdot TP2}$	<b>Tolérance de réflecteur</b> Régler la sensibilité. La tolérance du réflecteur indique la variation de position relative admissible du réflecteur. Exemple : 500 mm +/- 5%

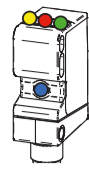
Instructions Teach-In



Indicazioni LED

Legenda

Modalità operativa (IT)



- LED on
- Lampeggiamento LED a 1 Hz
- Lampeggiamento LED a 2 Hz
- Lampeggiamento LED a 8 Hz

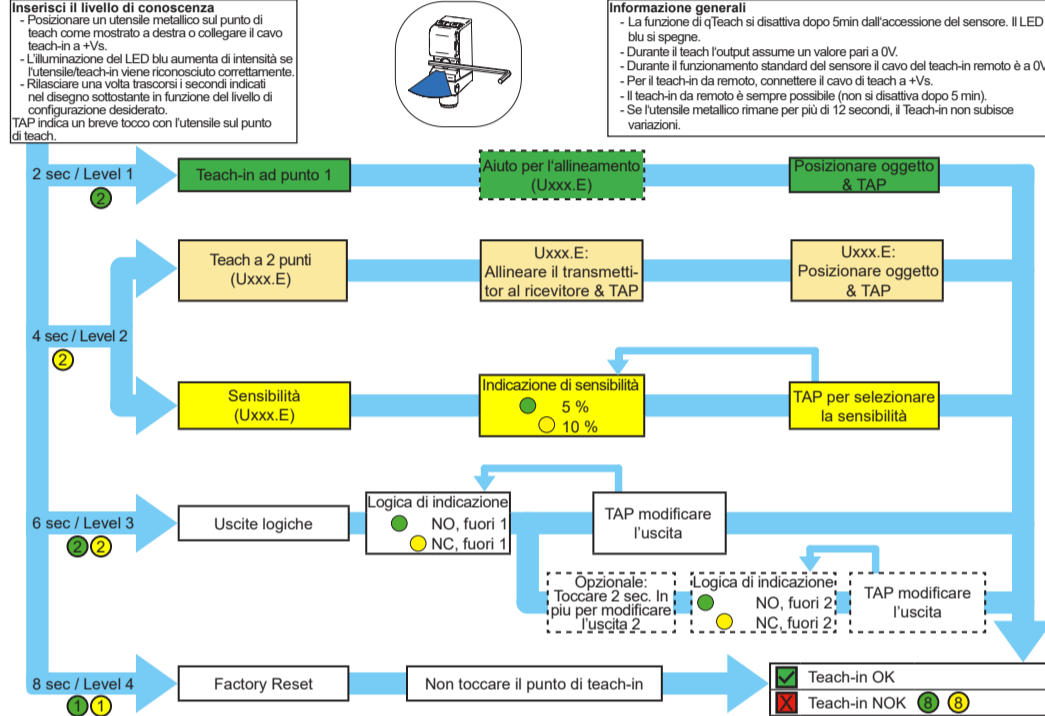
Indicazioni LED	Verde	Giallo	Rosso	Blu
Power On	●			
Corto circuito	①			
Uscita 1 attiva		●		
Uscita 1 prossima alla soglia		⑧		
Uscita 2 attiva			●	
Uscita 2 prossima alla soglia			⑧	
qTeach utilizzabile				●

● Solo i sensori con 2 uscite hanno un LED rosso

Descrizione livelli di Teach-in 1 e 2

	Uxxx.E	Uxxx.R
<b>Livello 1</b>	<b>Teach a 1 punto</b> Impostazione automatica della soglia di commutazione in funzione dell'intensità restituita dal riflettore (massima sensibilità)	<b>Uscita 1 - teach ad 1 punto</b> Teach-In della posizione del riflettore
<b>Livello 2</b>	<b>Teach a 2 punti</b> Impostazione della soglia di commutazione a un valore medio tra l'intensità restituita dal riflettore e dall'oggetto $SP = \sqrt{TP1 \cdot TP2}$	<b>Impostazioni di sensibilità</b> Impostare la sensibilità. La sensibilità regola la tolleranza sul posizionamento del riflettore. Esempio: 500mm +/-5%

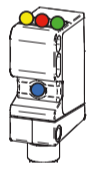
Istruccionees Teach-In



Información LED

Leyenda

Operating Mode (ES)



- LED ON
- LED parpadeo 1 Hz
- LED parpadeo 2 Hz
- LED parpadeo 8 Hz

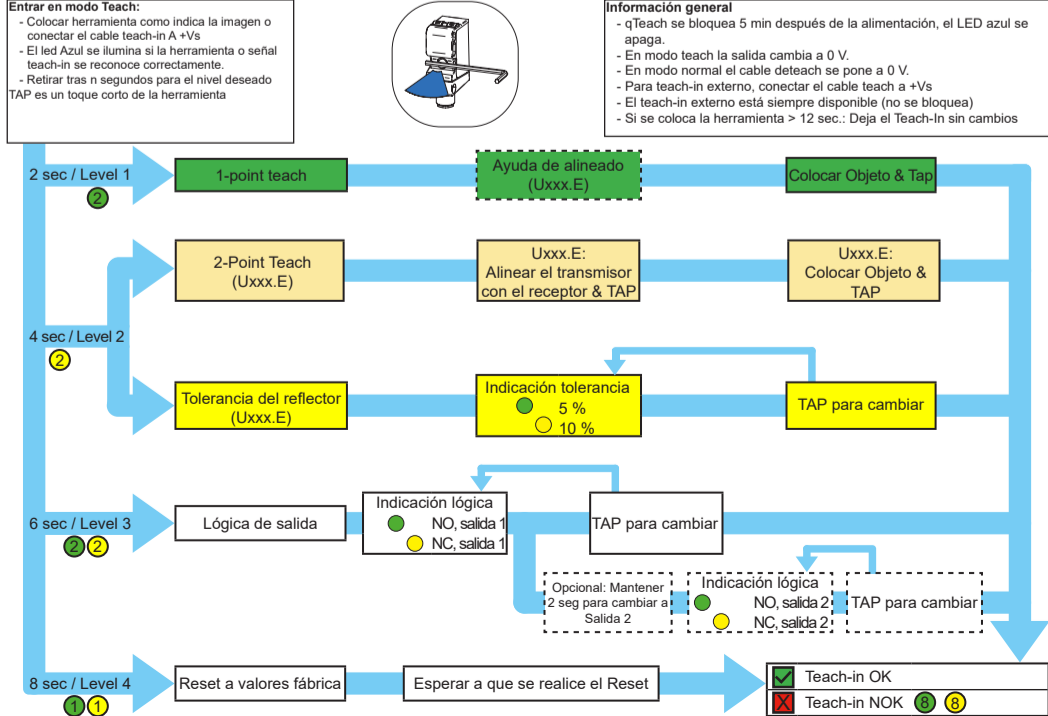
LED Indicators	green	yellow	red	blue
Power On	●			
Cortocircuito	①			
Salida 1 activa		●		
Salida 1 señal dentro del intervalo		⑧		
Salida 2 activa			●	
Salida 2 señal dentro del intervalo			⑧	
qTeach disponible				●

● Sólo los sensores con 2 salidas disponen de un LED rojo

Descripción Teach-In Nivel 1 & 2

	Uxxx.E	Uxxx.R
<b>Nivel 1</b>	<b>1-Point Teach</b> Aprende el reflector y define el límite lo más sensible posible.	<b>1 punto de enseñanza de salida 1</b> Aprender la posición del reflector (Distancia)
<b>Nivel 2</b>	<b>2-Point Teach</b> Aprende el límite en el punto medio entre el reflector y el objeto. $SP = \sqrt{TP1 \cdot TP2}$	<b>Tolerancia del reflector</b> Define el nivel de sensibilidad. La tolerancia del reflector se refiere a la variación máxima en la posición del reflector. Ejemplo: 500 mm +/-5%

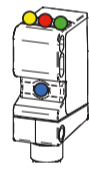
Instrucciones Teach-In



LED 指示灯

图例

操作模式 (CN)



- LED 亮
- LED 闪烁 1 Hz
- LED 闪烁 2 Hz
- LED 闪烁 8 Hz

LED 指示灯	绿	黄	红	蓝
通电	●			
短路	①			
输出 1 激活		●		
输出 1 信号接近阈值		⑧		
输出 2 激活			●	
输出 2 信号接近阈值			⑧	
qTeach 可使用				●

● 仅带2路输出的传感器有红色LED

Teach-In 说明 1 级 & 2 级

	Uxxx.E	Uxxx.R
<b>1级</b>	<b>1点设定</b> 设定反光板并将阈值设定得尽可能灵敏	<b>1点设定 输出 1</b> 设定反光板的位置(距离)
<b>2级</b>	<b>2点设定</b> 设定阈值在反光板和被测物之间 $SP = \sqrt{TP1 \cdot TP2}$	<b>反光板公差</b> 设定灵敏度 反光板公差表示相对允许的反光板位置的变化量。 示例: 500 mm ± 5%

设定说明

