

Ultrasonic sensors

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11723589

U500

EN
DE
FR
IT
ES
CN



qTarget®
qTeach®

www.baumer.com



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Models with IO-Link

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, function of Pin 5, LED status indicators and more

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

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.

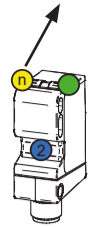
Les versions barrières réflex et barrières simples (R et E/R) sont équipées d'un outil d'aide à l'alignement, qui est intégré au niveau 1 de la procédure de teach. L'aide à l'alignement indique la force du signal reçu.

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

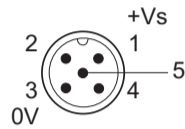
Related Models

U500 Models:
U500.R (Retro reflective version)
U500.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	Through beam version (E-Receiver)	Through beam version (T-Emitter)
	.R	.E	.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.
5 - Gray GY	Teach-in / Sync / Mux via IO-Link		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

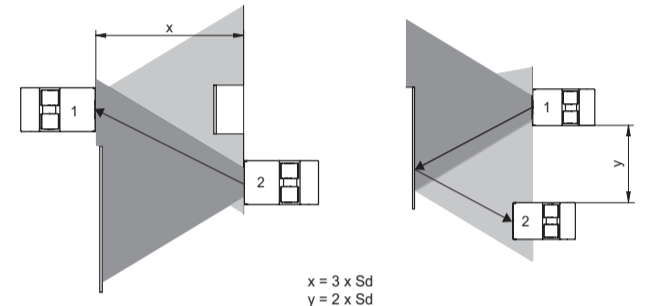
Minimal distance between two sensors

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	●			
Short circuit	①			
Output 1 active		●		
Output 1 signal close to threshold		⑧		
Output 2 active			●	
Output 2 signal close to threshold			⑧	
qTeach not locked				●
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	●			
Kurzschluss	①			
Ausgang 1 aktiv		●		
Ausgang 1 Signal nahe der Schwelle		⑧		
Ausgang 2 aktiv			●	
Ausgang 2 Signal nahe der Schwelle			⑧	
qTeach verwendbar				●
Teach-in Modus	siehe Teach-in Anweisung			

● Nur Sensoren mit 2 Ausgängen verfügen über eine rote LED

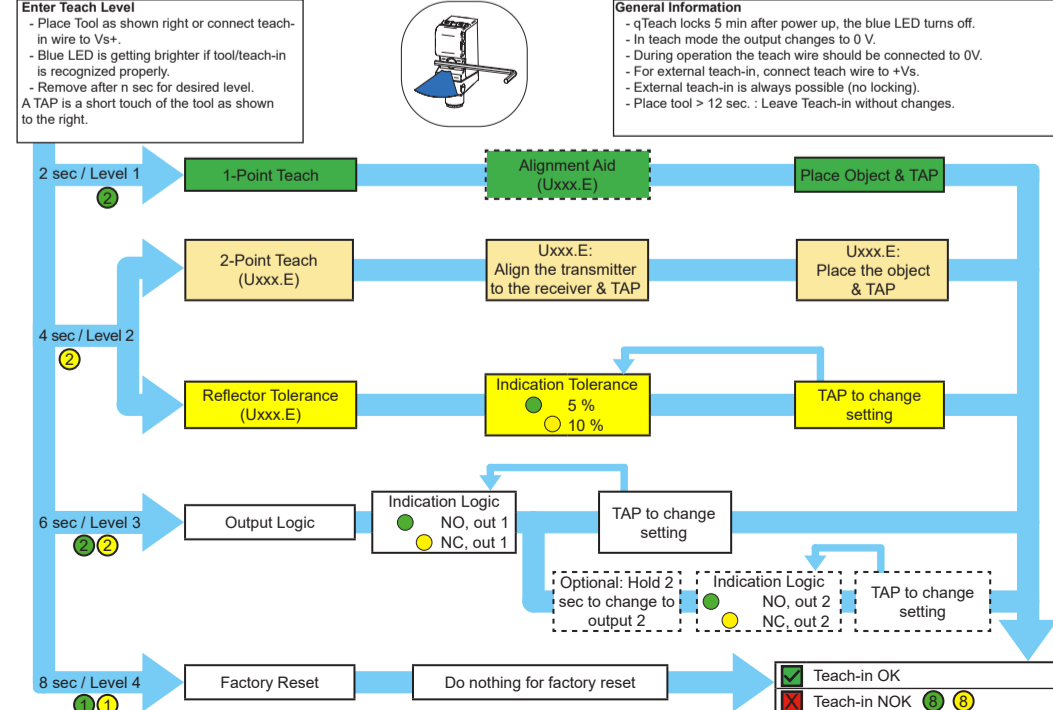
Teach-In Description Level 1 & 2

	Uxxx.E	Uxxx.R
Level 1	1-Point Teach Sets the threshold as close to the measured value as possible	1-Point Teach Output 1 Teach-In the position of the Reflector (Distance)
Level 2	2-Point Teach Sets the threshold in the middle of reflector and object SP = sqrt(TP1 * TP2)	Reflector Tolerance 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.

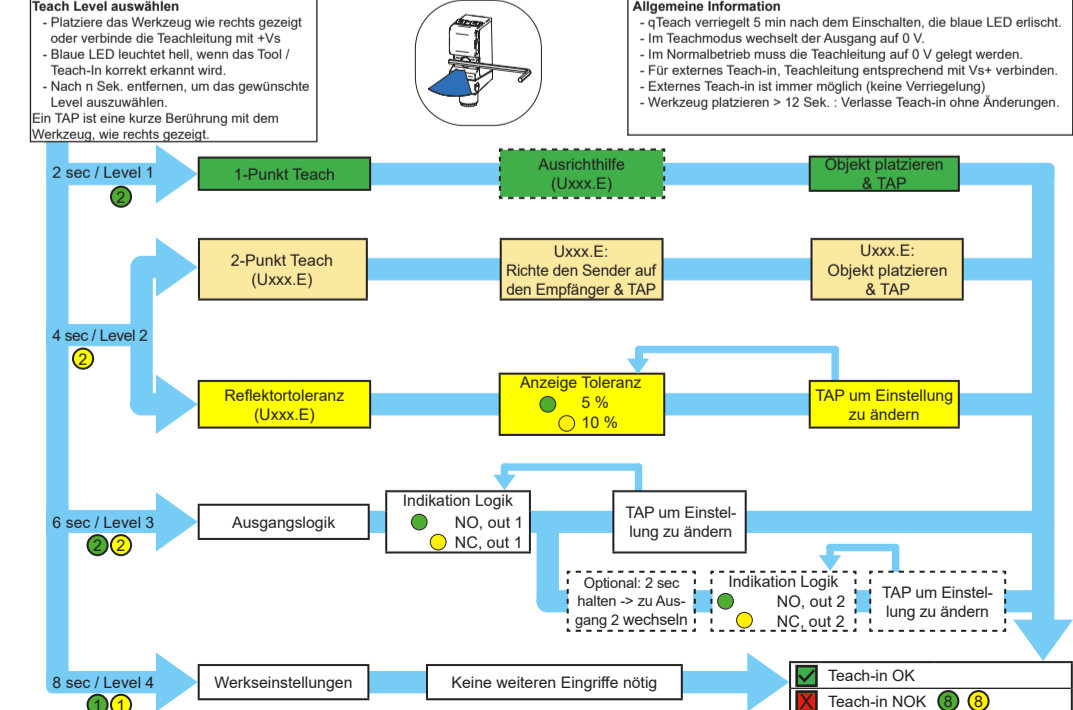
Teach-In Beschreibung Level 1 & 2

	Uxxx.E	Uxxx.R
Level 1	1-Punkt Teach Setzt die Schaltschwelle so nah ans eingelernte Reflektorsignal wie möglich.	1-Punkt Teach Ausgang 1 Einlernen der Reflektordistanz
Level 2	2-Punkt Teach Setzt den Schaltschwellenpunkt in die Mitte der eingelernten Signale SP = sqrt(TP1 * TP2)	Reflektortoleranz 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.

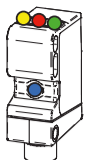
Teach-in Instruction



Teach-in Anleitung



Indication LED



Légende

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

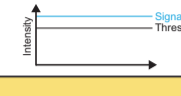
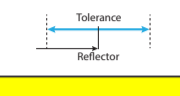
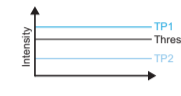
Mode de fonctionnement

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				●

Mode Teach-In: Voir Instructions Teach-In

● Seuls les détecteurs avec 2 sorties ont une LED rouge

Description Teach-In Niveau 1 & 2

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

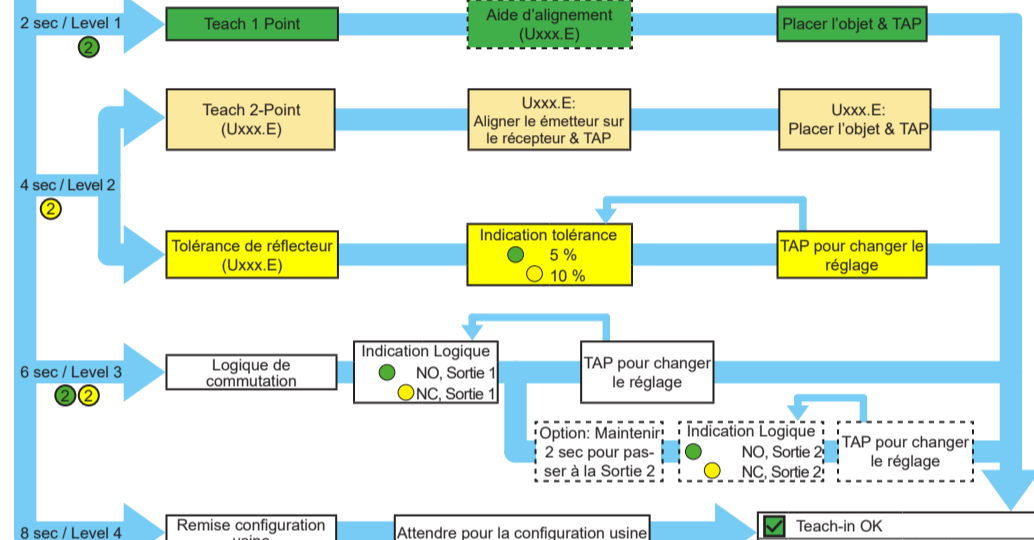
Instructions Teach-In

Entrée en mode Teach:

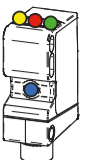
- Placer l'outil comme indiqué ci-contre ou connecter le fil Teach-in au +Vs
- La LED bleue devient plus brillante si l'outil / Teach-in est reconnu correctement
- Enlever après n sec. en fonction du niveau de réglage souhaité
- Un TAP est une touche courte de l'outil comme présenté ci-contre

Information Générale

- qTeach se verrouille 5 min après la mise tension, la LED bleue s'éteint
- En mode Teach la sortie est à 0 V
- En mode normal l'entrée Teach est à 0 V
- Pour un Teach externe, connecter l'entrée Teach correspondant au +Vs
- Le Teach externe est toujours disponible (Pas de verrouillage)
- Placer l'outil > 12 sec. : quitter le mode Teach sans modification



Indicazioni LED



Legenda

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

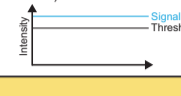
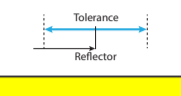
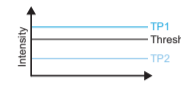
Modalità operativa

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				●

Modalità di Teach-In: see Teach-In Instruction

● Solo i sensori con 2 uscite hanno un LED rosso

Descrizione livelli di Teach-in 1 e 2

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

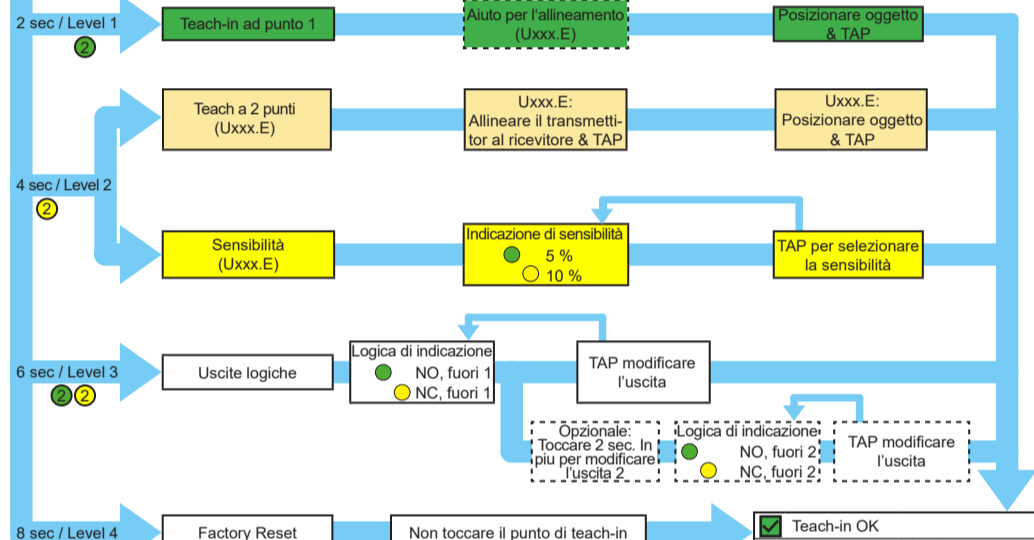
Istruciones Teach-In

Inserisci il livello di conoscenza

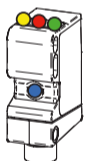
- Posizionare un utensile metallico sul punto di teach come mostrato a destra o collegare il cavo teach-in a +Vs
- L'illuminazione del LED blu aumenta di intensità se l'utensile teach-in viene riconosciuto correttamente.
- Rilasciare una volta trascorsi i secondi indicati nel disegno sottostante in funzione del livello di configurazione desiderato.
- TAP indica un breve tocco con l'utensile sul punto di teach.

Informazione generali

- La funzione di qTeach si disattiva dopo 5min dall'accesso del sensore. Il LED blu si spegne.
- Durante il teach l'output assume un valore pari a 0V.
- Durante il funzionamento standard del sensore il cavo del teach-in remoto è a 0V.
- Per il teach-in da remoto, connettere il cavo di teach a +Vs.
- Il teach-in da remoto è sempre possibile (non si disattiva dopo 5 min).
- Se l'utensile metallico rimane per più di 12 secondi, il Teach-in non subisce variazioni.



Información LED



Leyenda

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

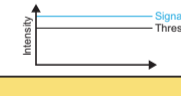
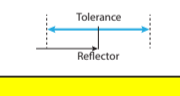
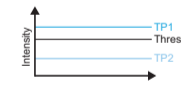
Operating Mode

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				●

Modo Teach-In: Ver instrucciones Teach-In

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

Descripción Teach-In Nivel 1 & 2

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

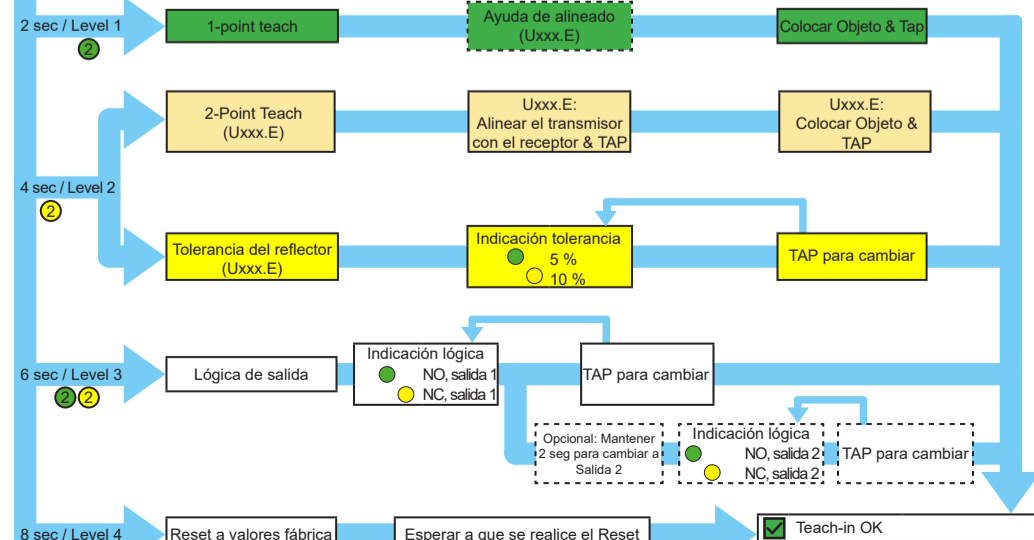
Instrucciones Teach-In

Entrar en modo Teach:

- Colocar herramienta como indica la imagen o conectar el cable teach-in a +Vs
- El led azul se ilumina si la herramienta o señal teach-in se reconoce correctamente.
- Retirar tras n segundos para el nivel deseado
- TAP es un toque corto de la herramienta

Información general

- qTeach se bloquea 5 min después de la alimentación, el LED azul se apaga.
- En modo teach la salida cambia a 0 V.
- En modo normal el cable detach se pone a 0 V.
- Para teach-in externo, conectar el cable teach a +Vs
- El teach-in externo está siempre disponible (no se bloquea)
- Si se coloca la herramienta > 12 sec.: Deja el Teach-In sin cambios



LED 指示灯



图例

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

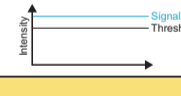
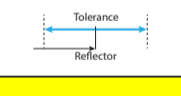
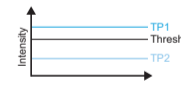
操作模式

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				●

Teach-in 模式: 详见 Teach-in 说明

● 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
1级	1点设定 设定反光板并将阈值设定得尽可能灵敏 	1 点设定 输出 1 设定反光板的位置(距离) 
2级	2点设定 设定阈值在反光板和被测物之间 $SP = \sqrt{TP1 \cdot TP2}$ 	反光板公差 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

进入设定等级:

- 如右图所示放置金属工具或连接设定线至 +Vs
- 蓝色LED 变得更亮, 如果工具或设定被正确识别
- 在 n 秒后档选定所需的等级是拿开触碰是如右图所示用工具快速靠近感应区域

总览:

- qTeach 开启5分钟后自行锁定, 蓝色LED 熄灭.
- 在设定模式下输出变至 0 V.
- 在通常情况下设定先接至 0 V.
- 对于外部设定, 将设定线连接至 +Vs.
- 外部设定线永久有效(无自锁)
- 放置工具 > 12 秒.: 在等级设定过程中而不做任何更改.

