

Photoelectric sensors

07.12.2018 / Version 1.1

O200

Xpert Mode



EN
DE
FR
IT
ES
CN

IO-Link Process Data Input									
Integer T(16)	Integer T(8)	8 bit							
Measurement Data Channel (MDC)	Scale	Baumer specific							
		7	6	5	4	3	2	1	0
		SSC4			Alarm	Quality			SSC1

SSC1/4: Switching Signal Channels
MDC: Excess Gain, Intensity or Switch Counter (selectable)
Quality: The quality bit signals a weak 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, light emission on/off, Find Me (locating sensor) and more

Available Parameters:
Switching point, output function, time filters, operation modes, qTeach lock time, teach-mode, LED status indicators, Teach-In method and more

Available Additional Data:
Switch counter, temperature

IO-Link

www.baumer.com

Baumer

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qTarget®
qTeach®

Models with IO-Link

Reflexions-Lichtschranken und SmartReflect Lichtschranken (O200.R, O200.S) verfügen über eine Ausrichthilfe. Diese ist im Teach Level 1 integriert und zeigt die Stärke des empfangenen Signals an.

Retro-reflective sensors and SmartReflect Light barriers (O200.R, O200.S) are equipped with an 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 SmartReflect (O200.R, O200.S) 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.

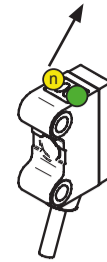
Le versioni a retro-riflessione e barriere SmartReflect (O200.R, O200.S) sono dotate di indicazione di corretto allineamento. Questa funzione è integrata nel livello 1 di Teach-In e viene indicata l'intensità del segnale ricevuto.

Las versiones retrorreflexiva y barrera SmartReflect (O200.R, O200.S) 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 SmartReflect (O200.R, O200.S) 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

O200 Models with Xpert Teach:

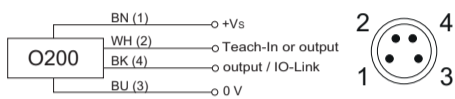
- O200.G (Background suppression sensors)
- O200.R (Retro-reflective sensors)
- O200.S (Smart Reflect Light barriers)

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



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Connection Diagrams



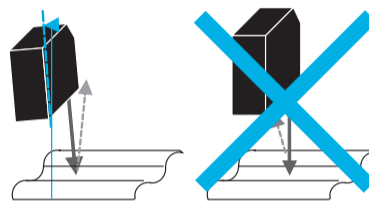
Color	Teach-In / IO-Link*	PNP Complementary	NPN Complementary
1 - Brown BN		+Vs	
2 - White WH	Teach-In*	PNP Inverted	NPN Inverted
3 - Blue BU		0 V	
4 - Black BK	Push-Pull / IO-Link*	PNP	NPN

*Only for models with IO-Link or ext. Teach-In

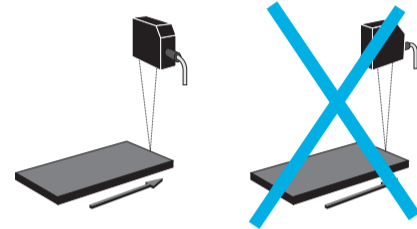
- Disconnect power before connecting the sensor.
- Voltage supply according UL 1310, Class 2
or device shall be protected by an external R/C or listed fuse, rated max. 30 VAC/3A or 24 VDC/4A

Mounting Instructions

Background suppression sensors & SmartReflect Light barriers



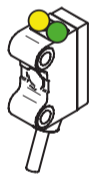
The direct reflection from glossy or reflective objects must not impinge on the receiver. This can be avoided by slightly tilting the sensor.



It is recommended that the object to be detected approaches the active area of the sensor from the side, which avoids malfunctions caused by deflection of the light beam at edges.



LED Indication



Legend

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

Operating Mode

EN

LED Indicators	Green	Yellow
Power on	●	
Short circuit	①	
Output 1 active		●
Output 1 signal close to threshold		⑧
Teach-in mode	see Teach-in Instruction	

LED Anzeige



Legende

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

Betriebsmodus

DE

LED Indikatoren	Grün	Gelb
Betriebsanzeige	●	
Kurzschluss	①	
Ausgang 1 aktiv		●
Ausgang 1 Signal nahe der Schwelle		⑧
Teach-In Modus	siehe Teach-In Anleitung	

Teach-In Description Level 1 & 2

	O200.G, Background suppression sensors	O200.R, Retro-reflective sensors	O200.S, SmartReflect light barriers	Optional Teach-In methods*
Level 1	1-Point Teach Sets the switchpoint at the position of the object +10%* 	1-Point Teach Sets the threshold as close to the measured value as possible 	1-Point Teach Teaches the position of the reference (distance) 	Configurable via IO-Link Window mode (only O200.G) Level 1 / 1-Point Teach: Set a window of +/- 10%* around the position of the object. Level 2 / 2-Point Teach: Set a window within the object is being detected.
Level 2	2-Point Teach Sets the switchpoint in the middle of position A & B 	2-Point Teach Sets the threshold in the middle of reflector and object $SP = \sqrt{(TP1 * TP2)}$ 	Not active For SmartReflect Light barriers, the teach level 2 is not active. If level 2 is entered, the sensor leaves the level immediately without any changes.	Dynamic Teach-In (only O200.G, O200.R) Available also for window mode. Enter teach level 1 to start the data acquisition and TAP to stop the data acquisition. (Duration 2 ... 15 sec) The switchpoint or window is defined by the detected min & max value.

*This value is adjustable by IO-Link. Please check the IO-Link manual available on www.baumer.com

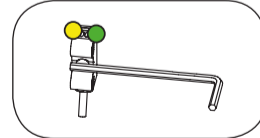
Teach-In Beschreibung Level 1 & 2

	O200.G, Hintergrundaussblendung	O200.R, Reflexions-Lichtschranken	O200.S, SmartReflect Lichtschranken	Optionale Teach-In Modi*
Level 1	1-Punkt Teach Setzt den Schalterpunkt an der Position des Objektes +10%* 	1-Punkt Teach Setzt die Schwellenweite so nah ans eingelernte Reflektorsignal wie möglich. 	1-Punkt Teach Lernt die Position der Referenz ein (Distanz) 	Einstellbar per IO-Link Fenster-Modus (O200.G) Level 1 / 1-Punkt Teach: Definiert ein Fenster à +/- 10% um die Position des Objektes Level 2 / 2-Punkt Teach: Definiert ein Schalterfenster, innerhalb welchem ein Objekt erkannt werden soll
Level 2	2-Punkt Teach Setzt den Schalterpunkt in die Mitte von Position A & B 	2-Punkt Teach Setzt den Schalterpunkt in die Mitte der eingelernten Signale $SP = \sqrt{(TP1 * TP2)}$ 	Nicht aktiv Für die SmartReflect Lichtschranken ist das Level 2 nicht aktiv. Wird das Teach-Level 2 ausgewählt, verlässt der Sensor den Teach-In Modus ohne jegliche Änderungen.	Dynamischer Teach-In (O200.G, O200.R) Ebenfalls verfügbar für den Fenster-Modus. Wird das Teach-Level 1 ausgewählt, startet die Datenaufnahme automatisch. Mit einem TAP wird die Datenaufnahme beendet. (Akzeptierte Dauer: 2 ... 15 sek.) Der Schalterpunkt oder das Schalterfenster wird auf Basis der min. & max. Werten definiert.

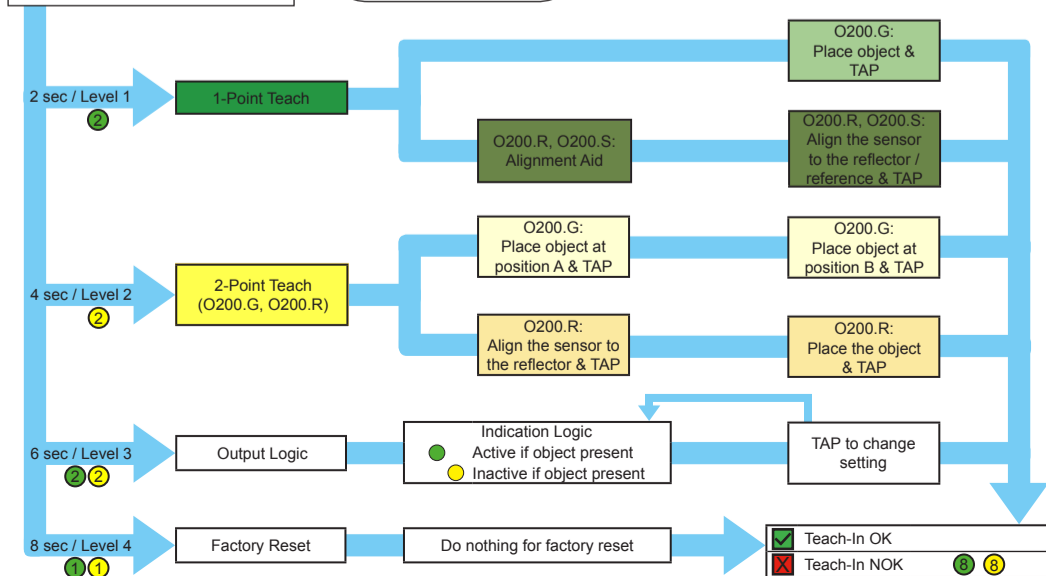
*Dieser Wert kann per IO-Link verändert werden. Weitere Details finden Sie im IO-Link Manual verfügbar auf www.baumer.com

Teach-in Instruction

Enter Teach Level
- Place tool as shown right or connect Teach-In wire to +Vs.
- Green and yellow LED light up if tool / Teach-In is recognized properly.
- Remove after n sec for desired level.
A TAP is a short touch of the tool as shown right.

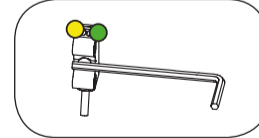


General Information
- qTeach locks 5 min after power up.
- In teach mode the output changes to 0V.
- During operation the teach wire should be connected to 0V.
- For external teach-in, connect teach wire to +Vs.
- External teach-in is always possible (no locking).
- Place tool > 2 sec.: Leave Teach-In without changes.

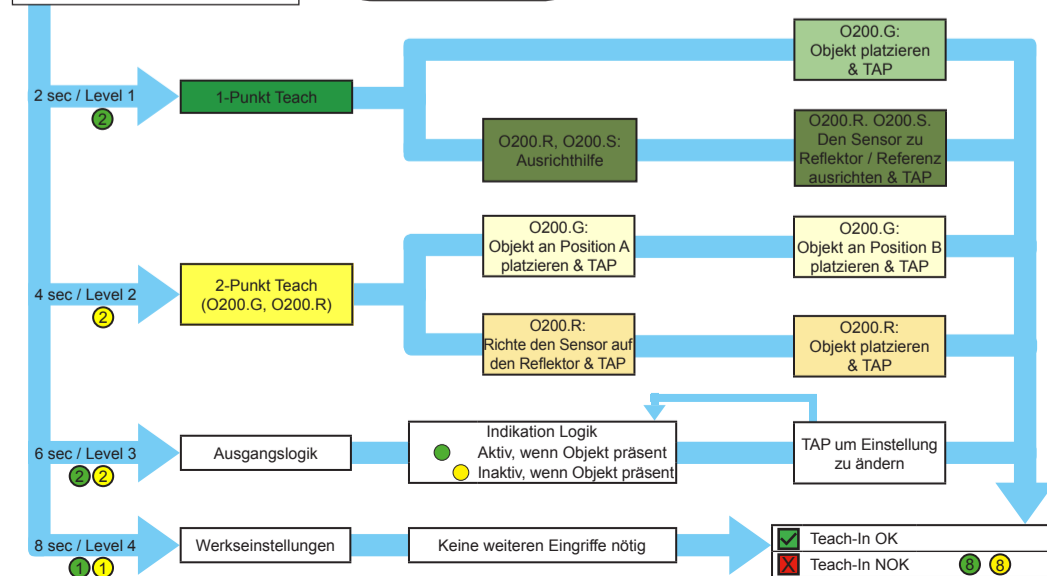


Teach-in Anleitung

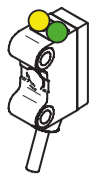
Teach Level auswählen
- Platziere das Werkzeug wie rechts gezeigt oder verbinde die Teachleitung mit +Vs.
- Die grüne und gelbe LED leuchten auf, wenn das Tool korrekt erkannt wird.
- Nach n Sek. entfernen, um das gewünschte Level auszuwählen.
Ein TAP ist eine kurze Berührung mit dem Werkzeug, wie rechts gezeigt.



Allgemeine Information
- qTeach verriegelt 5 min nach dem Einschalten.
- Im Teachmodus wechselt der Ausgang auf 0V.
- Im Normalbetrieb muss die Teachleitung auf 0V gelegt werden.
- Für externes Teach-In, Teachleitung entsprechend mit +Vs verbinden.
- Externes Teach-In ist immer möglich (keine Verriegelung).
- Werkzeug platzieren > 2 Sek.: Verlasse Teach-In ohne Änderungen.



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
Power On	●	
Court-circuit	①	
Sortie 1 activée		●
Sortie 1 signal proche du seuil		⑧
Mode Teach-In	Voir Instructions Teach-In	

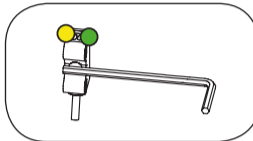
Description Teach-In Niveau 1 & 2

	O200.G, Suppression d'arrière-plan	O200.R, Retro-réflex	O200.S, Barrière SmartReflect	Méthodes de Teach-in optionnelles*
Niveau 1	Teach 1-point Régler le point de commutation à la position de l'objet +10%* 	Teach 1-point Apprendre le réflecteur et régler le seuil le plus sensible possible. 	Teach 1-point Apprendre la position de la référence (distance) 	Configurable via IO-Link Mode fenêtre (uniquement O200.G) Niveau 1 / Teach 1-point: Régler une fenêtre de +/- 10% autour de la position de l'objet Niveau 2 / Teach 2-point: Régler une fenêtre dans laquelle l'objet sera détecté
Niveau 2	Teach 2-point Régler le point de commutation entre la position A & B 	Teach 2-point Régler le seuil au milieu du réflecteur et de l'objet $SP = \sqrt{TP1 \cdot TP2}$ 	Pas active Pour la barrière SmartReflect, le Teach niveau 2 n'est pas actif. Si le niveau 2 est activé, le capteur quitte immédiatement ce niveau sans changement	Teach-In dynamique (uniquement O200.G, O200.R) Disponible également pour le mode fenêtre. Entre dans le Teach niveau 1 pour démarrer l'acquisition de données et TAP pour arrêter l'acquisition de données. (Durée : 2...15 sec) Le point de commutation ou la fenêtre est définie par la valeur Min & Max détectée

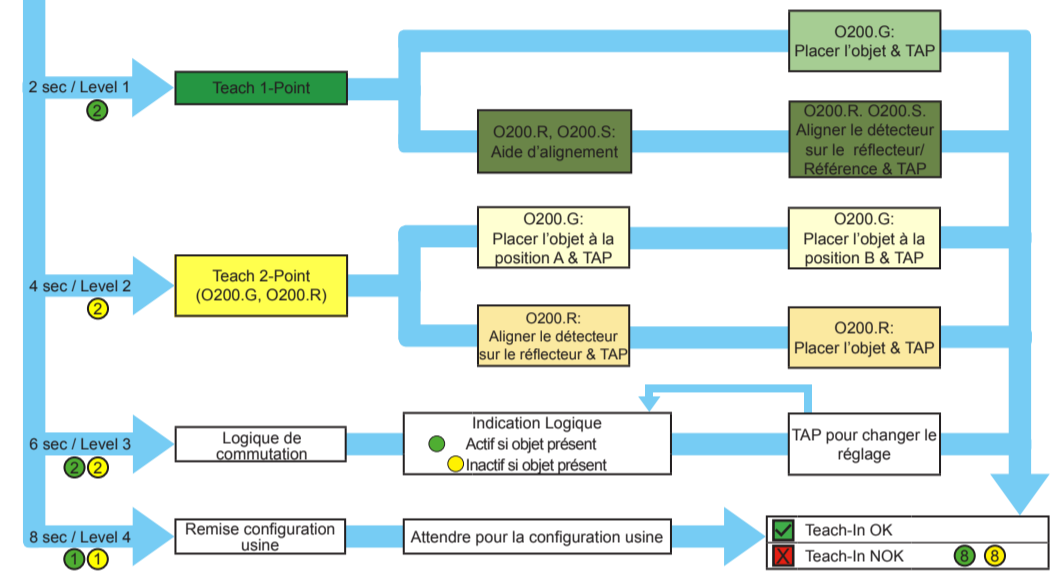
* Cette valeur est ajustable via IO-Link. Consultez le manuel IO-Link disponible sur www.baumer.com

Instructions Teach-In

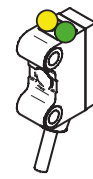
Entrée en mode Teach:
 - Placer l'outil comme indiqué ci-contre ou connecter le fil Teach-In à +Vs.
 - Si le Teach est activé correctement, les LED verte et jaune sont allumées.
 - Enlever après n sec. en fonction du niveau de réglage souhaité.
 Un TAP est une touche courte de l'outil comme présenté ci-contre.



Information Générale
 - q Teach se verrouille 5 min après la mise tension.
 - En mode Teach la sortie est à 0V.
 - En mode normal l'entrée Teach est à 0V.
 - Pour un Teach externe, connecter l'entrée Teach correspondant au +Vs.
 - Le Teach externe est toujours disponible (Pas de verrouillage).
 - Placer l'outil > 2 sec. : quitter le mode Teach sans modification



Indicazioni LED Legenda Modalità operativa (IT)



- LED acceso
- LED lampeggia a 1 Hz
- LED lampeggia a 2 Hz
- LED lampeggia a 8 Hz

Indicazioni LED	Verde	Giallo
Power On	●	
Corto circuito	①	
Uscita 1 attiva		●
Uscita 1 prossima alla soglia		⑧
Modalità di Teach-In	vedi istruzioni Teach-In	

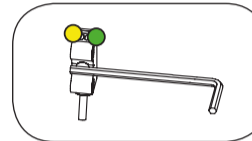
Descrizione dei livelli 1 e 2 Teach-In

	O200.G, Sensori a soppressione di sfondo	O200.R, Sensori a retro-riflessione	O200.S, Sensori SmartReflect	Configurazioni opzionali*
Livello 1	Teach a 1 punto Impostazione del punto di commutazione alla posizione desiderata +10%* 	Teach a 1 punto Impostazione automatica della soglia di commutazione in funzione dell'intensità restituita dal riflettore (massima sensibilità) 	Teach a 1 punto Teach-In della posizione dello sfondo 	Configurazioni tramite IO-Link Funzionamento a finestra (solo O200.G) Livello 1/Teach 1 punto: Viene impostata una finestra di +/-10% relativa alla posizione dell'oggetto da rilevare Livello 2/Teach a 2 punti: Viene impostata una finestra tra due punti all'interno dei quali l'oggetto deve essere rilevato
Livello 2	Teach a 2 punti Impostazione del punto di commutazione a metà tra la posizione A e la posizione B 	Teach a 2 punti Impostazione della soglia di commutazione a un valore medio tra l'intensità restituita dal riflettore e dall'oggetto $SP = \sqrt{TP1 \cdot TP2}$ 	Non attivo Per le fotocellule SmartReflect, il Teach-In al livello 2 non è attivo. Accendendo a tale livello, non si apportano modifiche	Modalità Teach-In dinamico (solo O200.G, O200.R) Disponibile anche nel funzionamento a finestra. Entrare nel livello 1 di configurazione per avviare l'acquisizione dinamica ed effettuare un TAP per terminarla (durata 2...15 sec). Il punto di commutazione o la finestra vengono definiti in base al valore minimo e al valore massimo acquisiti.

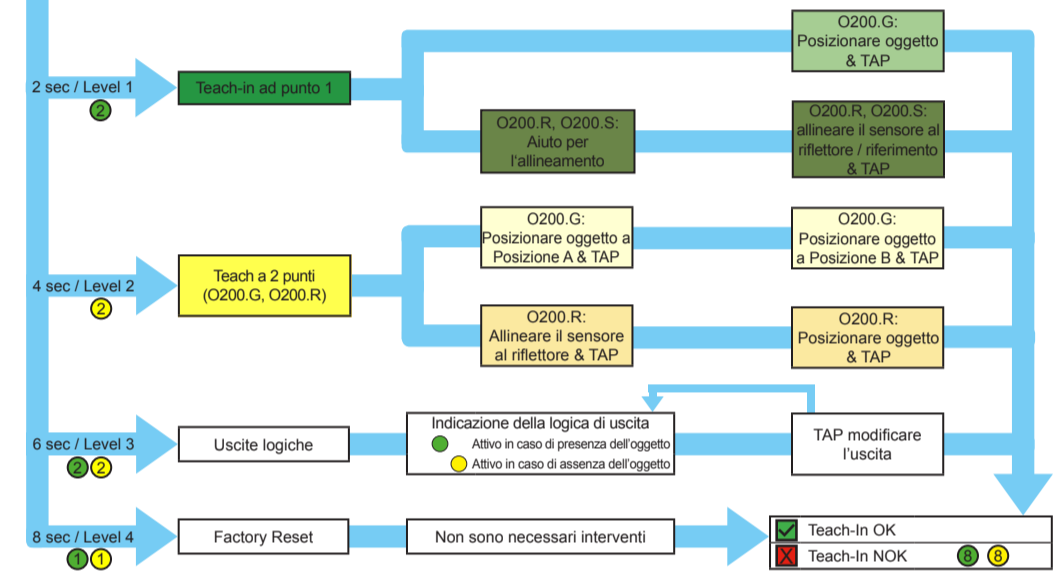
*Questo valore è modificabile via IO-Link. Consultare il manuale IO-Link disponibile sul sito www.baumer.com

Istruzioni Teach-In

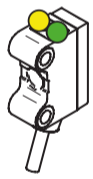
Selezionare il livello di Teach-In
 - Posizionare un utensile metallico sul punto di teach come mostrato a destra o collegare il cavo Teach-In a +Vs.
 - Se l'utensile viene riconosciuto correttamente, entrambi i LED si accendono.
 - Rilasciare una volta trascorsi i secondi indicati nello schema sottostante in funzione del livello di configurazione desiderato.
 TAP indica un breve tocco con l'utensile sul punto di teach.



Informazione generale
 - La funzione di q Teach si disattiva dopo 5min dall'accensione del sensore.
 - In modalità Teach-In l'output assume un valore pari a 0V.
 - Durante il funzionamento normale del sensore il cavo Teach-In va messo 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).
 - Riposizionare l'utensile metallico per più di 2 secondi per uscire dalla modalità di Teach-In senza salvare.



Información LED Leyenda Modo operativo (ES)



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

Información LED	Verde	Amarillo
Power On	●	
Cortocircuito	①	
Salida 1 activa		●
Salida 1 señal dentro del intervalo		⑧
Modo Teach-In	Ver instrucciones Teach-In	

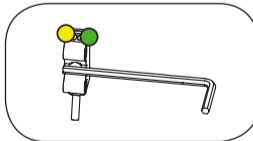
Descripción Teach-In Nivel 1 & 2

	O200.G, Sensores con supresión de fondo	O200.R, Sensores Retroreflexivos	O200.S, Barreras SmartReflect	Métodos Teach-In opcionales*
Nivel 1	1-Point Teach Define el punto de conmutación en la posición del objeto +10%* 	1-Point Teach Aprende el reflector y define el límite lo más sensible posible. 	1-Point Teach Aprende la posición de la referencia (Distancia) 	Ajustable via IO-Link Modo ventana (Sólo O200.G) Nivel 1 / 1-Point Teach: Define una ventana de +/- 10% alrededor de la posición del objeto. Nivel 2 / 2-Point Teach: Define una ventana donde se detectará el objeto.
Nivel 2	2-Point Teach Define el punto de conmutación en la posición media entre A y B 	2-Point Teach Aprende el límite en el punto medio entre el reflector y el objeto. $SP = \sqrt{TP1 \cdot TP2}$ 	No activo Para las barreras SmartReflect, el nivel 2 no está activo. Si se entra en el nivel 2, el sensor deja el nivel sin cambios inmediatamente.	Teach-In dinámico (Sólo O200.G, O200.R) Disponible sólo en el modo ventana. Entrar en el nivel 1 para iniciar la adquisición de datos y activar para detener la adquisición de datos (duración de 2 a 15 s). El punto de conmutación o ventana se define por los valores mínimos y máximos detectados.

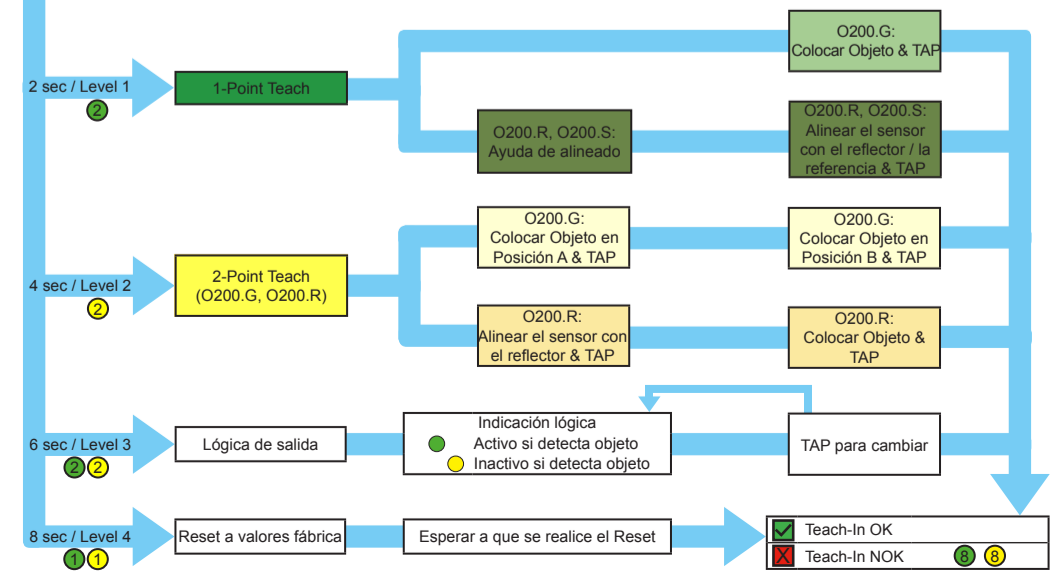
*Este valor es ajustable via IO-Link. Por favor consulte el manual IO-Link disponible en www.baumer.com

Instrucciones Teach-In

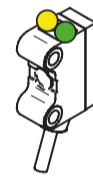
Entrar en modo Teach:
 - Colocar herramienta como indica la imagen o conectar el cable Teach-In a +Vs.
 - LEDs verde y amarillo encendidos si la herramienta o el teach-in se reconocen correctamente.
 - Retirar tras n segundos para el nivel deseado.
 TAP es un toque corto de la herramienta.



Información general
 - q Teach se bloquea 5 min después de la alimentación.
 - En modo teach la salida cambia a 0V.
 - En modo normal el cable detach se pone a 0V.
 - 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 > 2 sec.: Deja el Teach-In sin cambios.



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
通电	●	
短路	①	
输出 1 激活		●
输出 1 信号接近阈值		⑧
Teach-in 模式	详见 Teach-in 说明	

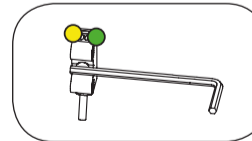
Teach-In 说明 1 级 & 2 级

	O200.G, 带背景抑制漫反射	O200.R, 镜反射	O200.S, 智能反射	可选的设置方式*
1级	1点设定 将开关点设置在被测物位置后10% 	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 设定参考面的位置 (距离) 	通过IO-Link配置 窗口模式 (仅 O200.G) 1级/1点设定: 设定大约在被测物 ±10% 位置的窗口 2级/2点设定: 设定前后两个位置之间的窗口
2级	2点设定 设定开关点在A和B位置的中间 	2点设定 设定阈值在反光板和被测物之间 $SP = \sqrt{TP1 \cdot TP2}$ 	未激活 对于智能反射传感器, 2级设定未被激活, 如果进入2级设定, 传感器将在不做任何改动下立即离开该设定.	动态模式 (仅 O200.G, O200.R) 也适用于窗口模式. 输入1级设定以开始数据采集, 输入 TAP 以停止数据采集. (持续时间 2...15秒) 开关点或窗口由检测到的最小值和最大值定义.

*这个值是通过IO-Link来调整的, 请在 www.baumer.com 上查询IO-Link手册

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
 - 如果工具或设定被恰当地识别到, 绿色和黄色LED将亮起.
 - 在 n 秒后按设定所需的等级是拿开触点是如右图所示用工具快速靠近感应区域



总览:
 - q Teach 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 (无自动).
 - 放置工具 > 2 秒.: 在等级设定过程中而不做任何更改.

