

# Photoelectric sensors

25.11.2019 / Version 2.0  
11209435

O200  
Xpress Mode

EN  
DE  
FR  
IT  
ES  
CN



qTarget®  
qTeach®

www.baumer.com

**Baumer**

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# Models with IO-Link

IO-Link

IO-Link Process Data Input									
Integer I(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

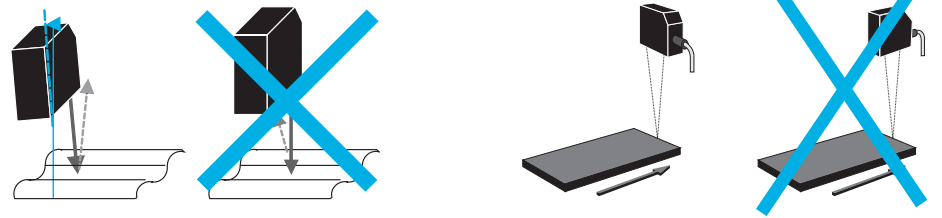
SSC1/4: Switching Signal Channels  
MDC: Excess Gain, Intensity or Switch Counter (selectable)  
Quality: The quality bit signals a weak signal  
Alarm: The alarm bit signals a problem with the configuration or the functionality of the sensor  
Scale: Factor by power of ten, applicable to the value of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

# Mounting Instructions



## Background suppression sensors (O200.G) & SmartReflect Light barriers (O200.S)

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.  
Exception: Sensors with line beam

## Sensoren mit Hintergrundaussblendung (O200.G) & SmartReflect Lichtschranken (O200.S)

Bei glänzenden oder spiegelnden Objekten darf der direkte Reflex nicht auf den Empfänger fallen. Dies kann vermieden werden, indem der Sensor leicht abgekippt wird.

Es ist zu beachten, dass ein zu erfassendes Objekt sich dem aktiven Bereich des Sensors von der Seite nähern sollte, dadurch werden Fehlschaltungen durch Ablenkungen des Lichtstrahles an Kanten vermieden.  
Ausnahme: Sensoren mit linienförmigen Strahl

## Détecteurs de suppression d'arrière-plan (O200.G) & barrières SmartReflect (O200.S)

La réflexion directe d'une surface brillante ou d'objets très réfléchissants ne doit pas parvenir au récepteur. Ceci peut être évité en inclinant un peu le capteur.

Il est recommandé que l'objet à détecter adopte une approche latérale, ce qui évite les dysfonctionnements liés à la diffraction du faisceau sur les bords.  
Exception: Capteurs à faisceau linéaire

## Fotocellule a soppressione di sfondo (O200.G) e SmartReflect (O200.S)

Su superfici lucide e riflettenti è consigliabile inclinare leggermente il sensore per evitare riflessi diretti sul ricevitore.

Si raccomanda di installare il sensore in modo che l'oggetto entri lateralmente nel fascio di luce.  
Eccezione: Sensori con raggio di linea

## Sensores con supresión de fondo (O200.G) y barreras SmartReflect (O200.S)

La reflexión directa sobre objetos brillantes o reflectantes no debe incidir en el receptor. Esto se puede evitar inclinando ligeramente el sensor.

Se recomienda que el objeto se aproxime lateralmente al sensor, de este modo se Evitan errores de detección causados por la reflexión del haz en los bordes.  
Excepción: Sensores con rayo de línea

## 带背景抑制漫发射和智能反射传感器 (O200.G, O200.S)

光泽或高反光物体的全反射不得反射到接收器。通过稍微倾斜传感器可以避免这种情况。

建议被测物从侧面接近传感器的有效区域, 这避免了光束在边缘处偏转而引起的故障。  
例外: 线状光斑

# Related Models

## O200 Models with Xpress Teach:

- O200.G\* (Background suppression sensors)
- O200.Z (Diffuse sensors with intensity difference)
- O200.R (Retro-reflective sensors)
- O200.S\* (Smart Reflect Light barriers)
- O200.T/E (Through beam sensors (E: Receiver)(T: Emitter))

\*Equipped with

ALINE®

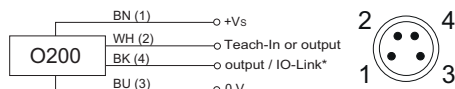
The innovative, high performance CMOS Opto-ASIC for fast and temperature-stable sensors with high ambient light immunity

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



www.baumer.com

# Connection Diagrams

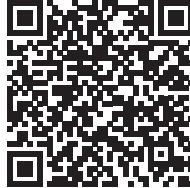


	Push-Pull & Teach-In / IO-Link*	PNP Complementary	NPN Complementary	O200.T, Emitter
1 - Brown BN		+Vs		
2 - White WH	Teach-In*	PNP Inverted	NPN Inverted	Test
3 - Blue BU		0 V		
4 - Black BK	Push-Pull / IO-Link*	PNP	NPN	n.c.

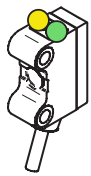
\*Only for models with IO-Link or ext. Teach-In  
Test: Connect Test to +Vs to deactivate the light emission (O200.T)  
n.c.: Not connected

See packaging label for the specific wiring of your product

- 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



# 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	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
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	LED on	
Kurzschluss	LED blinkt 1 Hz	
Ausgang 1 aktiv		LED blinkt 2 Hz
Ausgang 1 Signal nahe der Schwelle		LED blinkt 8 Hz
Teach-In Modus	siehe Teach-In Anweisung	

# Teach-In Description

	O200.G, Diffuse sensors with background suppression	O200.R, Retro-reflective sensors O200.T/E, Through beam sensors O200.Z, Diffuse sensors	O200.S, SmartReflect Light barriers	Optional Teach-In methods*
<b>Level 1</b>	<b>1-Point Teach</b> Sets the switchpoint at the position of the object +TPO* (Teach point Offset) TPO: See packaging (typ. 0% or 10%) 	<b>1-Point Teach</b> Sets the threshold as close to the measurement value as possible Threshold = Signal * TPO TPO: See packaging (typ. 33%) 	<b>1-Point Teach</b> Teaches the position of the reference (distance) Tolerance: See packaging (typ. 12%) 	<b>Window mode (only O200.G)</b> Level 1 / 1-Point Teach: Sets a window of +/- 10%* around the position of the object <b>Dynamic Teach-In (only O200.G, R, Z, T/E)</b> The data acquisition starts immediately after activating Teach-In by and stops as soon as released. Accepted duration of data acquisition: 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

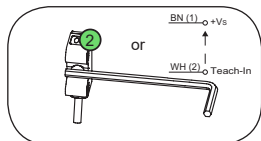
# Teach-In Beschreibung

	O200.G, Reflexions-Lichttaster mit Hintergrundaussblendung	O200.R, Reflexions-Lichtschranken O200.T/E, Einweg-Lichtschranken O200.Z, Reflexions-Lichttaster	O200.S, SmartReflect Lichtschranken	Optionale Teach-In Modi*
<b>Level 1</b>	<b>1-Punkt Teach</b> Setzt den Schalterpunkt an der Position des Objektes +TPO* (Teach point Offset) TPO: Siehe Verpackung (typ. 0% or 10%) 	<b>1-Punkt Teach</b> Setzt die Schaltschwelle so nah ans eingelernte Signal wie möglich Threshold = Signal * TPO TPO: Siehe Verpackung (typ. 33%) 	<b>1-Punkt Teach</b> Lernt die Position der Referenz ein (Distanz) Tolerance: Siehe Verpackung (typ. +/- 12%) 	<b>Einstellbar per IO-Link</b> <b>Fenster-Modus (O200.G)</b> Level 1 / 1-Punkt Teach: Definiert ein Fenster à +/- 10% um die Position des Objektes <b>Dynamischer Teach-In (O200.G, R, Z, T/E)</b> Ebenfalls verfügbar für den Fenster-Modus. Die Datenaufnahme startet unmittelbar nach der Aktivierung des Teach-In und stoppt, sobald das Teach-In freigegeben wird. 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

**How to activate the Teach-In**  
- Place ferromagnetic tool as shown right to activate qTeach® or connect Teach-In wire to +Vs  
- Green LED flashes with 2 Hz if tool/Teach-In is recognized properly

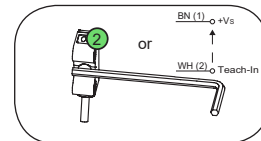


## General Information

- 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)

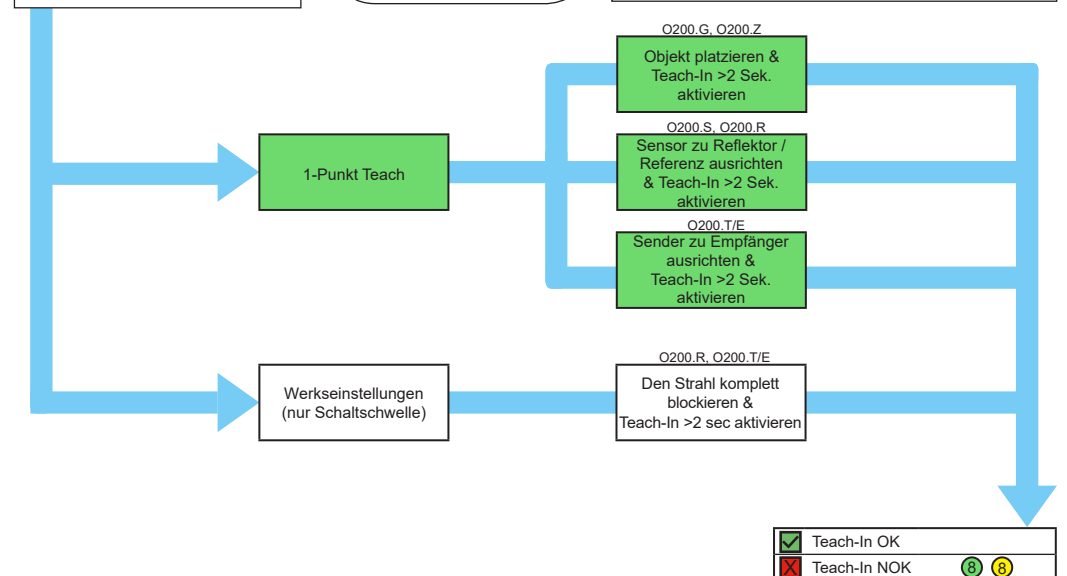
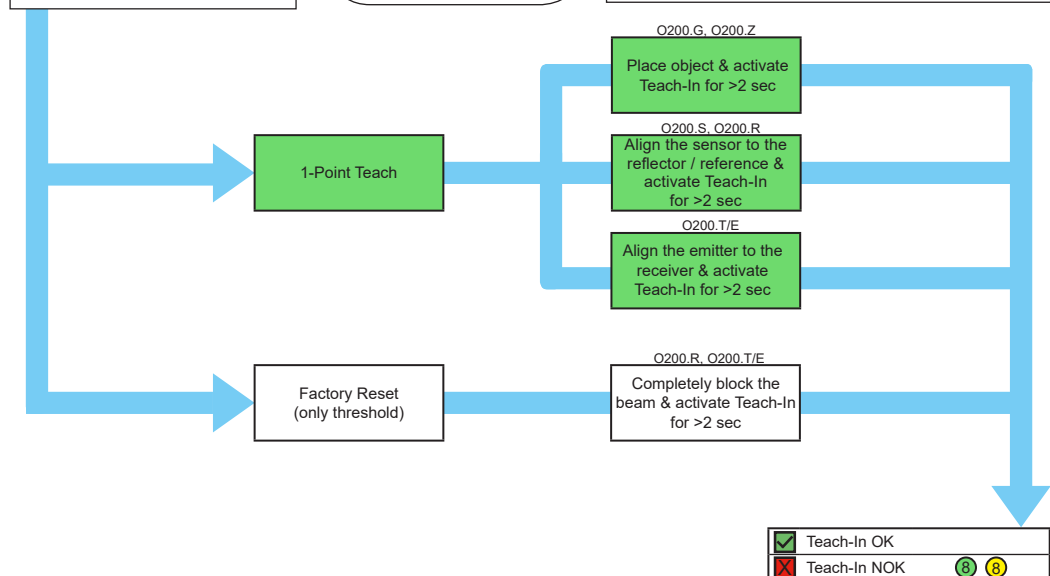
# Teach-In Anleitung

**Aktivierung des Teach-In**  
- Platziere das ferromagnetische Werkzeug wie rechts dargestellt um qTeach® zu aktivieren oder verbinde die Teachleitung mit +Vs  
- Die grüne LED blinkt mit 2 Hz, wenn das Werkzeug korrekt erkannt wird

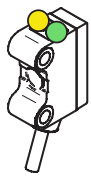


## Allgemeine Informationen

- 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)



Indication LED **Légende** **Mode de fonctionnement** **FR**



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

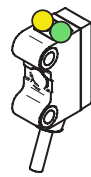
Indicateurs LED	Vert	Jaune
Power On	●	
Court-circuit	①	
Sortie 1 activée		●
Sortie 1 signal proche du seuil		⑧
Mode Teach-In	Voir Instructions Teach-In	

**Description Teach-In**

	O200.G, Suppression d'arrière-plan	O200.R, Retro-réflex O200.T/E, Barrière simple O200.Z, Détecteurs réflex énergétiques	O200.S, Barrière SmartReflect	Méthodes de Teach-in optionnelles*
<b>Niveau 1</b>	<b>Teach 1-point</b> Régler le point de commutation à la position de l'objet +TPO* (Teach point Offset) TPO: Voir l'emballage (typ. 0% o 10%) 	<b>Teach 1-point</b> Apprendre le signal et régler le seuil le plus sensible possible Threshold = Signal * TPO TPO: Voir l'emballage (typ. 33%) 	<b>Teach 1-point</b> Apprendre la position de la référence (distance) Tolerance: Voir l'emballage (typ. +/-12 %) 	Configurable via IO-Link <b>Mode fenêtre</b> (uniquement O200.G) Niveau 1 / Teach 1-point: Régler une fenêtre de +/- 10% autour de la position de l'objet <b>Teach-In dynamique</b> (uniquement O200.G, R, Z, T/E) Disponible uniquement pour le mode fenêtre. L'acquisition des données augmente immédiatement après activation du Teach-In. Il s'arrête immédiatement au relâchement. Durée d'acquisition de données acceptées : 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](http://www.baumer.com)

Indicazioni LED **Legenda** **Modalità operativa** **IT**



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

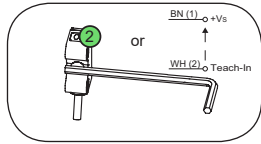
**Descrizione di Teach-In**

	O200.G, Sensori a soppressione di sfondo	O200.R, Sensori a retro-riflessione O200.T/E, Fotocellula a barriera O200.Z, Sensori a tasteggio diffuso	O200.S, Sensori SmartReflect	Configurazioni opzionali*
<b>Livello 1</b>	<b>Teach a 1 punto</b> Impostazione del punto di commutazione alla posizione desiderata +TPO* (Teach point Offset) TPO: Vedere imballaggio (typ. 0% o 10%) 	<b>Teach a 1 punto</b> Impostazione automatica della soglia di commutazione in funzione dell'intensità restituita (massima sensibilità) Threshold = Signal * TPO TPO: Vedere imballaggio (typ. 33%) 	<b>Teach a 1 punto</b> Teach-In della posizione dello sfondo TPO: Vedere imballaggio (typ. +/- 12%) 	Configurazioni tramite IO-Link <b>Funzionamento a finestra</b> (solo O200.G) Livello 1/Teach a 1 punto: Viene impostata una finestra di +/-10% relativa alla posizione dell'oggetto da rilevare <b>Modalità Teach-In dinamico</b> (solo O200.G, R, Z, T/E) Disponibile anche nel funzionamento a finestra. L'acquisizione dei dati inizia subito dopo l'attivazione del Teach-In. Si ferma appena rilasciato. Durata dell'acquisizione: 2...15 sec. Il punto di commutazione o la finestra vengono definiti in base al valore minimo e al valore massimo acquisiti.

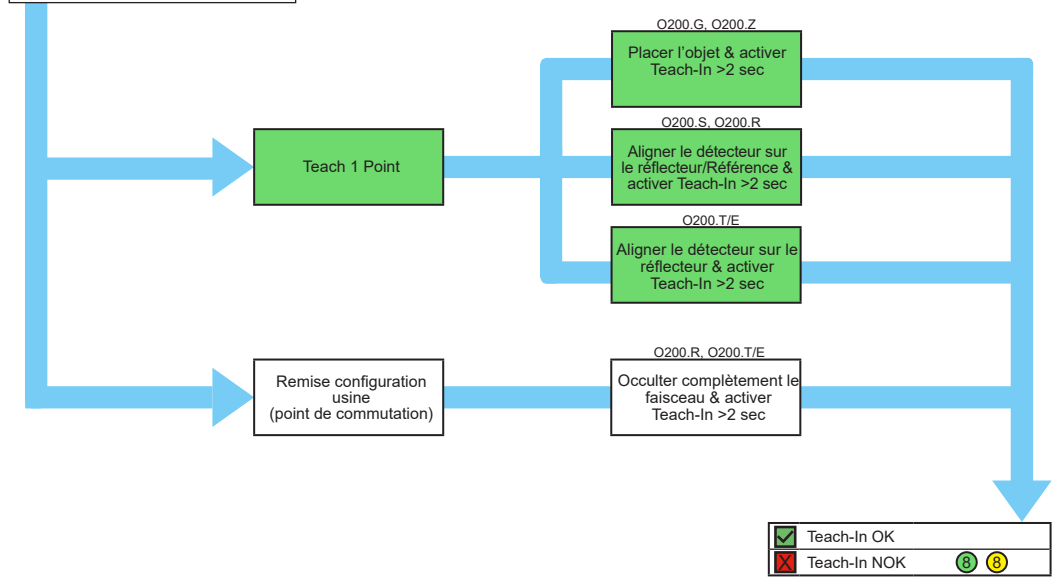
\*Questo valore è modificabile via IO-Link. Consultare il manuale IO-Link disponibile sul sito [www.baumer.com](http://www.baumer.com)

**Instructions Teach-In**

**Información Teach-In**  
- Placer l'outil ferromagnétique comme indiqué ci-contre pour activer qTeach® ou connecter le fil Teach-In a +Vs  
- La LED verte clignote à 2 Hz si l'outil/Teach-in est reconnu correctement

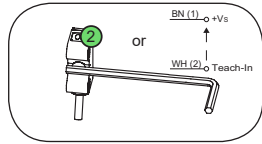


**Information Générale**  
- qTeach® se verrouille 5 min après la mise tension  
- En mode Teach la sortie est à 0V  
- En mode normal l'entrée Teach est à 0V  
- Pour un Teach externe, connecter l'entrée Teach correspondant au +Vs  
- Le Teach externe est toujours disponible (Pas de verrouillage)

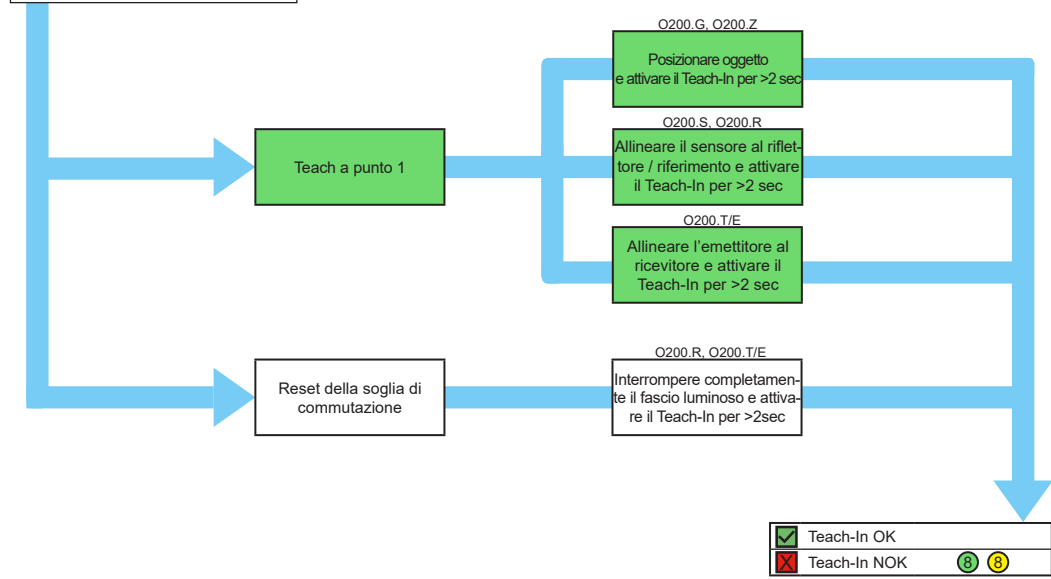


**Istruzioni Teach-In**

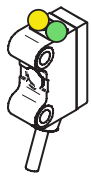
**Informazioni relative al Teach-In**  
- Posizionare l'utensile ferromagnetico come mostrato a destra di attivare qTeach® o collegare il cavo Teach-In a +Vs  
- Il LED verde lampeggia a 2 Hz se l'utensile/Teach-in viene riconosciuto correttamente



**Informazione generali**  
- La funzione di qTeach® 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 Teach-In a +Vs  
- Il Teach-In da remoto è sempre possibile (non si disattiva dopo 5 min)



Información LED **Leyenda** **Modo operativo** **ES**



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

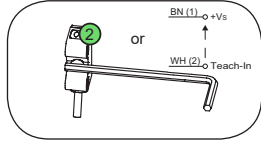
**Descripción Teach-In**

	O200.G, Sensores de reflexión con supresión de fondo	O200.R, Sensores Retroreflexivos O200.T/E, Barreras unidireccionales O200.Z, Sensores de reflexión	O200.S, Barreras SmartReflect	Métodos Teach-In opcionales*
<b>Nivel 1</b>	<b>1-Point Teach</b> Define el punto de conmutación en la posición del objeto +TPO* (TPO, Teach point Offset) TPO: Ver embalaje (typ. 0% o 10%) 	<b>1-Point Teach</b> Aprende la señal y define el límite lo más sensible posible Threshold = Signal * TPO TPO: Ver embalaje (typ. 33%) 	<b>1-Point Teach</b> Aprende la posición de la referencia (Distancia) Tolerance Ver embalaje (typ. +/- 12%) 	Configurable via IO-Link <b>Modo ventana</b> (Sólo O200.G) Nivel 1 / 1-Point Teach: Define una ventana de +/- 10% alrededor de la posición del objeto. <b>Teach-In dinámico</b> (Sólo O200.G, R, Z, T/E) Disponible también para modo ventana. La adquisición de datos se inicia inmediatamente después de activar teach-in. Se detiene tan pronto como se desactiva. Duración de adquisición de datos permitida: 2 a 15 s. El punto de conmutación o ventana se define por los valores mínimos y máximos detectados.

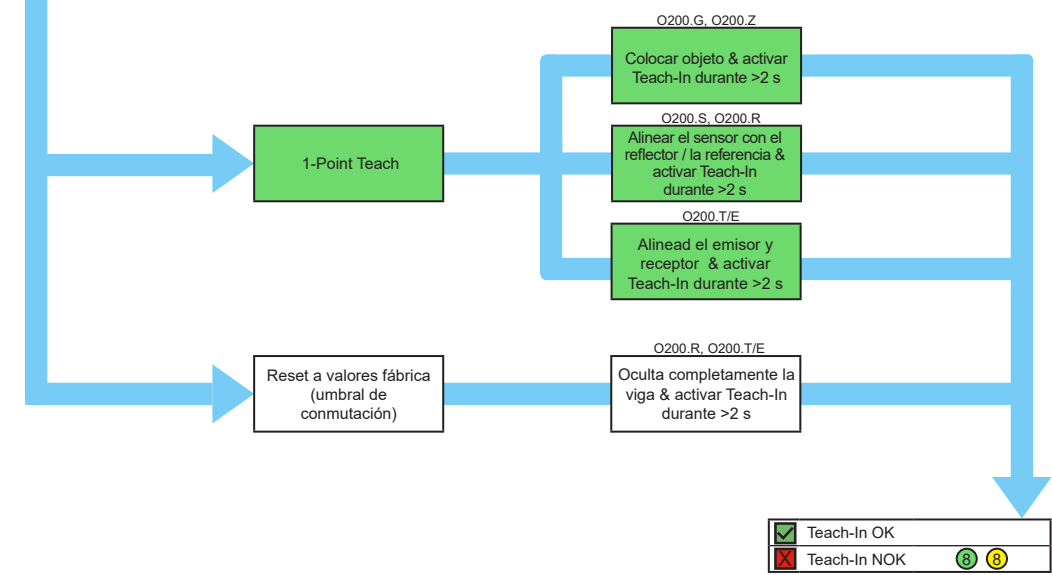
\*Este valor es ajustable via IO-Link. Por favor consulte el manual IO-Link disponible en [www.baumer.com](http://www.baumer.com)

**Instrucciones Teach-In**

**Información Teach-In**  
- Coloque la herramienta ferromagnética como indica la imagen para activar qTeach® o conectar el cable Teach-In a +Vs  
- El LED verde parpadea a 2 Hz se la herramienta/ Teach-In se reconoce correctamente



**Información general**  
- qTeach® 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)



LED 指示灯 **图例** **操作模式** **CN**



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

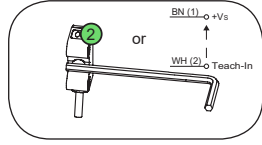
**Teach-In 说明 1 级**

	O200.G, 带背景抑制漫反射	O200.R, 镜反射 O200.T/E, 对射式传感器 O200.Z, 漫反射式传感器	O200.S, 智能反射	可选的设定方式
<b>1级</b>	<b>1点设定</b> 将开关点设置在被测物位置后TPO* (Teach point Offset) TPO: 查看包装 (通常为0%或10%) 	<b>1点设定</b> 设定反光板并将阈值设定得尽可能灵敏 Threshold = Signal * TPO TPO: 查看包装 (通常为33%) 	<b>1点设定</b> 设定参考面的位置 (距离) Tolerance: 查看包装 (通常为 +/- 12%) 	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 动态模式 (仅 O200.G, R, Z, T/E) 也适用于窗口模式。 在通过激活设定后, 数据采集立即开始, 它在释放后立即停止。 接受的数据采集持续时间: 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](http://www.baumer.com) 上查询IO-Link手册

**设定说明**

**设定信息**  
- 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LED 以2 Hz闪烁



**总览:**  
- qTeach® 开启5分钟后自行锁定  
- 在设定模式下输出变至 0V  
- 在通常情况下设定先接至 0V  
- 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)

