

# Photoelectric sensors

06.2023 / Version 1

O330  
Xpert Mode

EN  
DE  
FR  
IT  
ES  
CN



qTarget®  
qTeach®

www.baumer.com

**Baumer**

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## Related Models

**O330 Models with Xpert Teach:**  
O330.G\* (Background suppression sensors)

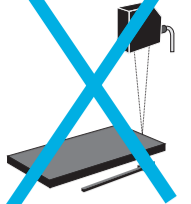
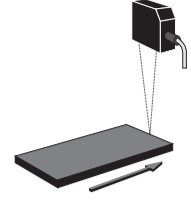
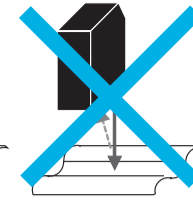
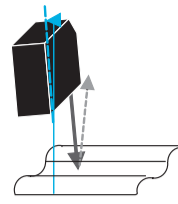
\*Equipped with **ALINE®**  
The innovative, high performance CMOS Opto-ASIC for fast and temperature-stable sensors with high ambient light immunity

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



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# Mounting Instructions



### Background suppression sensors

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

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

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

### Fotocellula a soppressione di sfondo

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

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

Se recomienda que el objeto se aproxime lateralmente al sensor, de éste 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

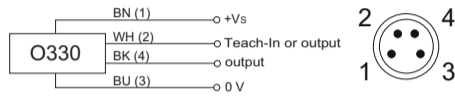
光泽或高反光物体的全反射不得反射到接收器。通过稍微倾斜传感器可以避免这种情况。

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



qTarget®  
The Baumer design aligns the sensor's light beam to the fixing holes (qTarget®) This allows a fast and easy installation without fine-tuning as well as a fast exchange.

## Connection Diagrams



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

\*Only for models with ext. Teach-In

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 on
Output 1 signal close to threshold		LED flashing 8 Hz
Teach-in mode	see Teach-in Instruction	

## LED Anzeige



## Legende

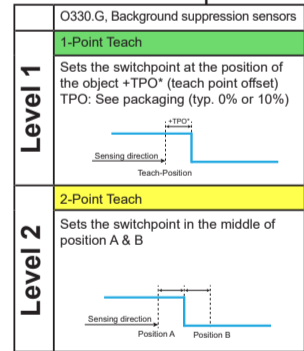
- LED leuchtet
- LED blinkt 1 Hz
- LED blinkt 2 Hz
- LED blinkt 8 Hz

## Betriebsmodus

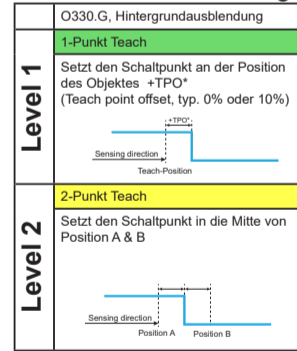
DE

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

## Teach-In Description Level 1 & 2

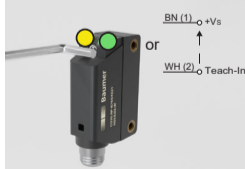


## Teach-In Beschreibung Level 1 & 2

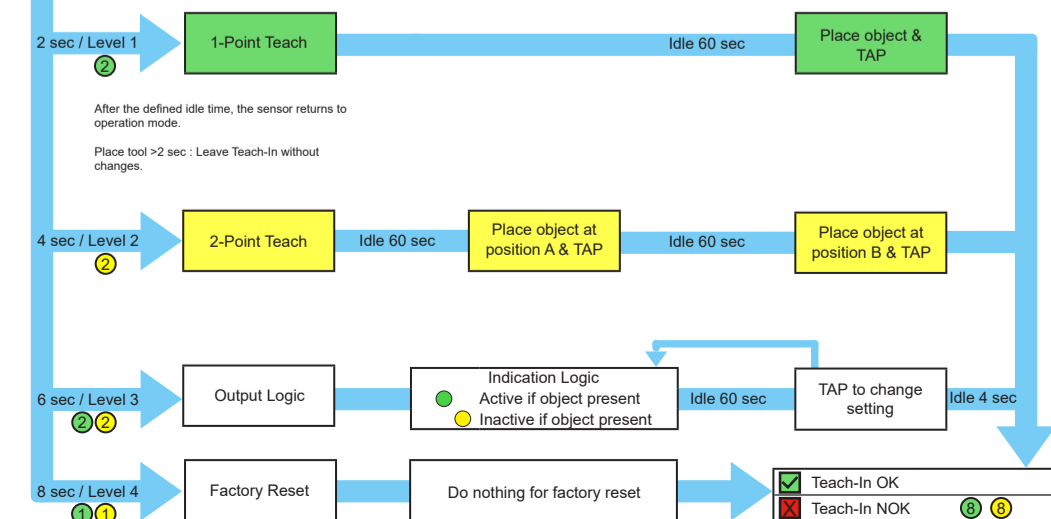


## Teach-in Instruction

**Enter Teach Level**  
- Place ferromagnetic tool as shown right to activate qTeach® 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 (>100 ms) of the tool as shown right

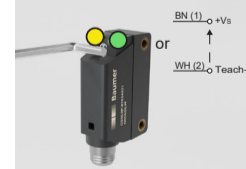


**General Information**  
- qTeach® locks 5 min after power up\*  
- If locked, qTeach® can be reactivated by re-apply-power or by connecting the Teach-In wire for >15 sec. to +Vs  
- External teach-in is always possible (no locking)  
- In teach mode the output changes to 0V  
- During operation the teach wire should be connected to 0V  
- For external Teach-In connect Teach-In to +Vs

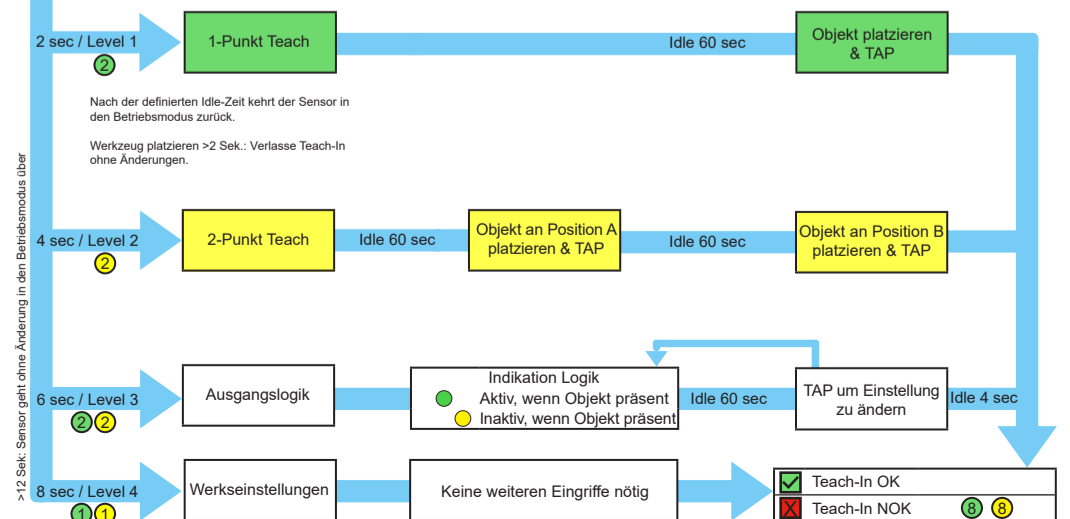


## Teach-in Anleitung

**Teach Level auswählen**  
- Platziere das ferromagnetische Werkzeug wie rechts dargestellt um qTeach® zu aktivieren oder verbinde die Teachleitung mit +Vs  
- Die grüne und gelbe LED leuchten auf, wenn das Werkzeug korrekt erkannt wird  
- Nach n Sek. entfernen, um das gewünschte Level auszuwählen  
Ein TAP ist eine kurze Berührung (>100 ms) des Werkzeugs



**Allgemeine Information**  
- qTeach® verriegelt 5 min nach dem Einschalten\*  
- Falls gesperrt, kann qTeach® durch ein erneutes Einschalten oder durch den Anschluss der Teach-In-Leitung für >15 Sek. an +Vs reaktiviert werden  
- Externes Teach-In ist immer möglich (keine Verriegelung)  
- 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



# Indication LED

# Légende

# Mode de fonctionnement FR

# Indicazioni LED

# Legenda

# Modalità operativa IT



- 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	



- 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	

## Description Teach-In Niveau 1 & 2

**Niveau 1**  
**Teach 1-point**  
 Régler le point de commutation à la position de l'objet +TPO\* (Teach point offset, typ. 0% o 10%)

**Niveau 2**  
**Teach 2-point**  
 Régler le point de commutation entre la position A & B

## Descrizione dei livelli 1 e 2 Teach-In

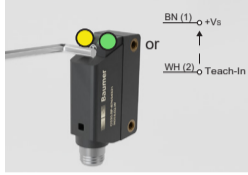
**Livello 1**  
**Teach a 1 punto**  
 Impostazione del punto di commutazione alla posizione desiderata +TPO\* (Teach point offset, typ. 0% o 10%)

**Livello 2**  
**Teach a 2 punti**  
 Impostazione del punto di commutazione a metà tra la posizione A e la posizione B

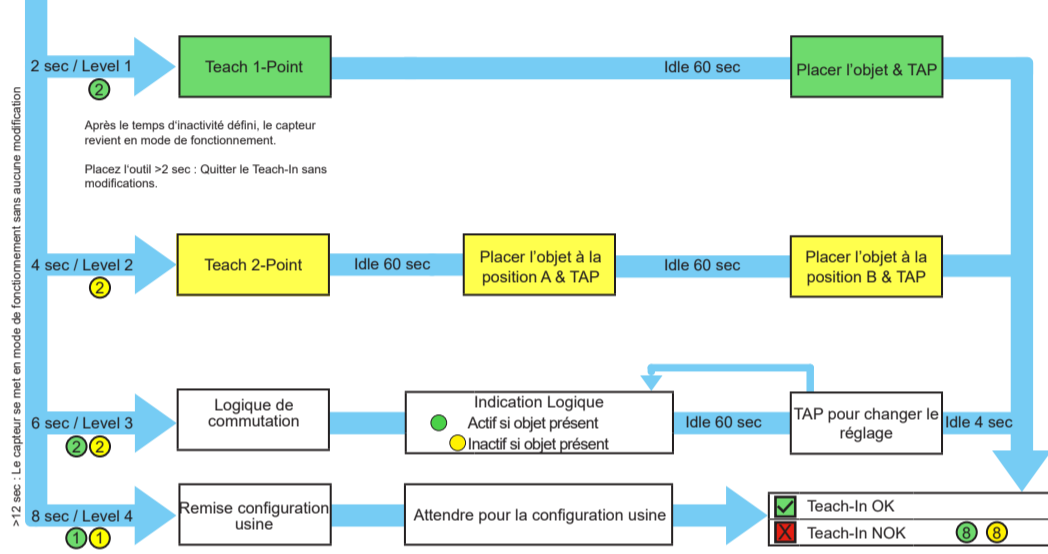
## Instructions Teach-In

**Entrée en mode Teach:**  
 - Placer l'outil ferromagnétique comme indiqué ci-contre pour activer qTeach® ou connecter le fil Teach-In au +Vs  
 - Si le Teach est activé correctement, les LED jaune et verte sont allumées  
 - Enlever après n sec pour le niveau souhaité

Un TAP est une courte touche (>100 ms) de l'outil comme présenté ci-contre



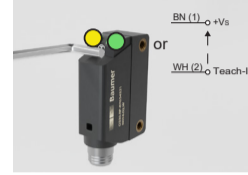
**Information Générale**  
 - qTeach® se verrouille 5 min après la mise sous tension.  
 - Si il est verrouillé, qTeach® peut être réactivé en réappliquant l'alimentation ou en connectant le fil de Teach-In pendant >15 sec. à +Vs  
 - Le Teach externe est toujours disponible (Pas de verrouillage)  
 - 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



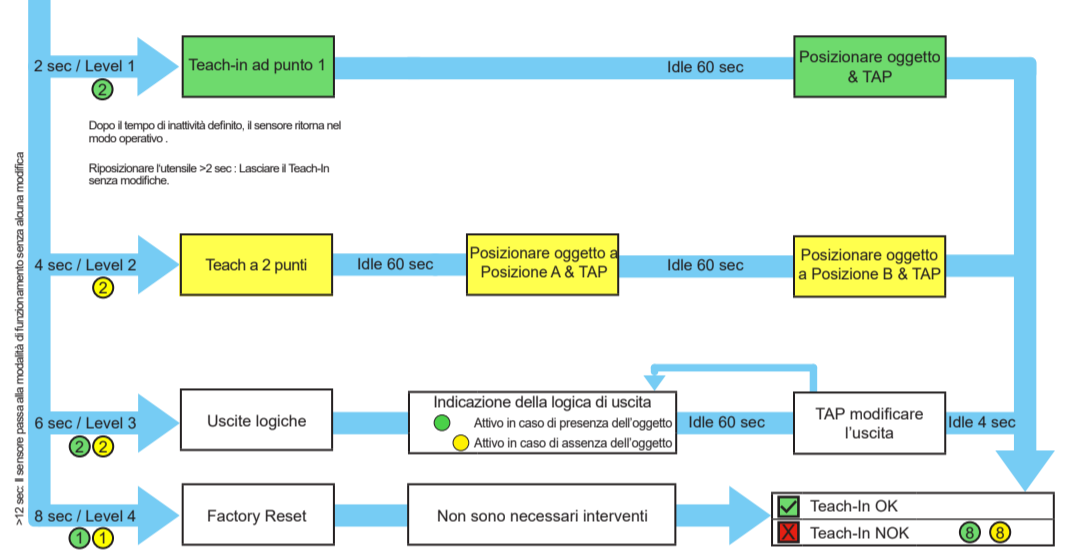
## Istruzioni Teach-In

**Selezionare il livello di Teach-In**  
 - Posizionare l'utensile ferromagnetico come mostrato a destra di attivare qTeach® o collegare il cavo Teach-In a +Vs  
 - Se l'utensile viene riconosciuto correttamente, entrambi i LED si accendono  
 - Ritruovare dopo n sec. per il livello desiderato

TAP indica un breve tocco con l'utensile sul punto di teach.



**Informazione generali**  
 - La funzione di qTeach® si disattiva dopo 5min dall'accensione del sensore\*  
 - Se disabilitato qTeach® può essere riattivato mediante riapplicazione dell'alimentazione o collegando il filo Teach-In per >15 sec. a +Vs  
 - In modalità Teach-In l'output assume un valore pari a 0V  
 - Il Teach-In da remoto è sempre possibile (non si disattiva dopo 5 min)  
 - Durante il normale funzionamento del sensore il cavo Teach-In va messo a 0V  
 - Per il Teach-In da remoto, connettere il cavo di teach a +Vs



# Información LED

# Leyenda

# Modo operativo ES

# LED 指示灯

# 图例

# 操作模式 CN



- 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	



- 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	

## Descripción Teach-In Nivel 1 & 2

**Nivel 1**  
**1-Point Teach**  
 Define el punto de conmutación en la posición del objeto +TPO\* (Teach point offset, typ. 0% o 10%)

**Nivel 2**  
**2-Point Teach**  
 Define el punto de conmutación en la posición media entre A y B

## Teach-In 说明 1 级 & 2 级

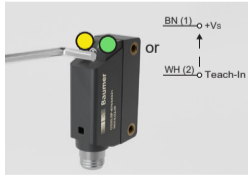
**1级**  
**1点设定**  
 将开关点设置在被测物位置后TPO\* (Teach point offset)  
 TPO: 查看包装 (通常为0%或10%)

**2级**  
**2点设定**  
 设定开关点在A和B位置的中间

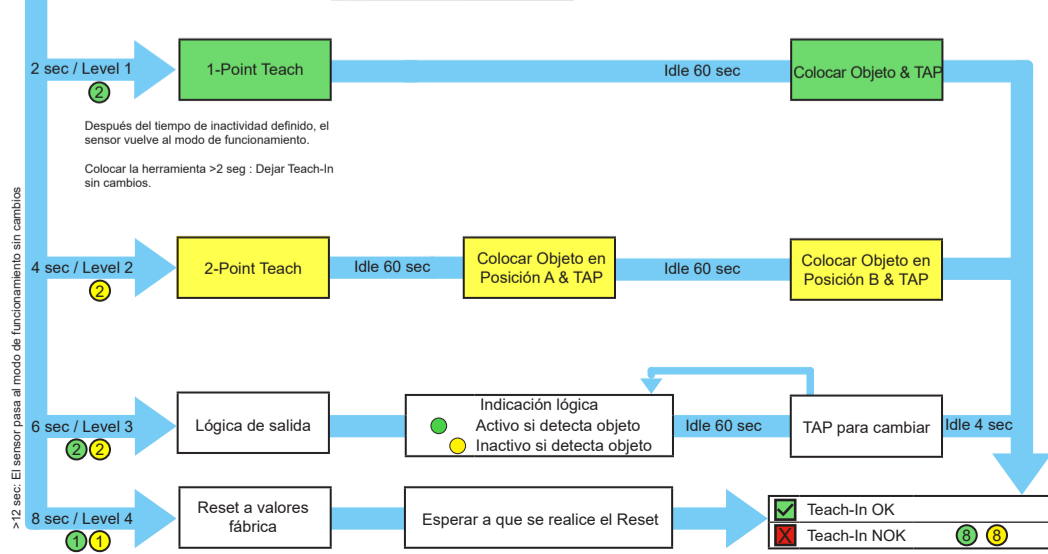
## Instrucciones Teach-In

**Entrar en modo Teach:**  
 - Coloque la herramienta ferromagnética como indica la imagen para activar qTeach® 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

Un TAP es un toque corto (>100 ms) de la herramienta

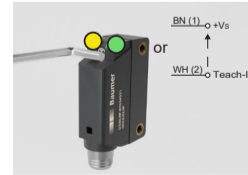


**Información general**  
 - qTeach® se bloquea 5 min después de la alimentación\*  
 - Si está bloqueado, qTeach® puede ser reactivado volviendo a dar alimentación o conectando el cable de Teach-In durante >15 seg. a +Vs  
 - El teach-in externo está siempre disponible (no se bloquea)  
 - En modo teach la salida cambia a 0V  
 - En modo normal el cable de teach se pone a 0V  
 - Para teach-in externo, conectar el cable teach a +Vs



## 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  
 - 锁定之后, qTeach® 可以通过重新上电或者把外部示教线连接到 +Vs上大于15秒后进行激活  
 - 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)

