

Ultrasonic sensors

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11722621

U500

EN
DE
FR
IT
ES
CN



NexSonic®
qTarget®
qTeach®

www.baumer.com

Baumer

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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

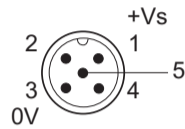
Related Models

U500 Models:
U500.D (Analog output)
U500.P (1-Point switch output)
U500.P (2-Point switch output)
U500.D (Analog output retro fit version)

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

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Connection Diagrams



	1-Point switch	2-Point switch	Analog measurement out	Analog measurement out
	.P	.P	.D	.D (retro)
1 - Brown BN	+Vs			
2 - White WH	n.c.	Push-Pull out 2	U or I / Teach-In	Teach-in
3 - Blue BU	0 V			
4 - Black BK	IO-Link / Push-Pull out 1			U or I
5 - Gray GY	Teach-in / Sync / Mux selectable 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

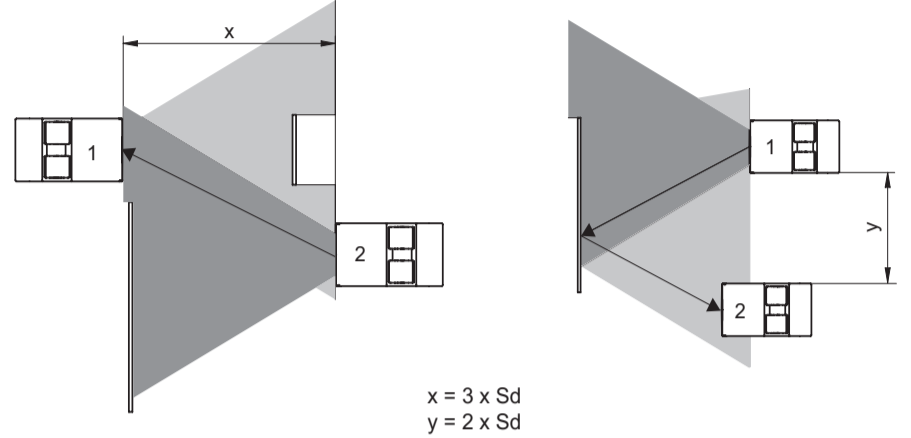
Minimal distance between two sensors

Distance minimale entre deux capteurs

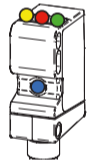
Distanza minima tra due sensori

Distancia mínima entre dos sensores

传感器之间最小安装距离



LED Indication



Legend

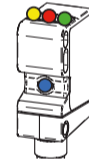
- LED on
- LED flashing 1 Hz
- LED flashing 2 Hz
- LED flashing 8 Hz

Only sensors with 2 outputs do have a red LED

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 2 Hz	
Output 2 signal close to threshold			LED flashing 8 Hz	
qTeach not locked				LED on
Teach-in mode	see Teach-in Instruction			

LED Anzeige



Legende

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

Nur Sensoren mit 2 Ausgängen verfügen über eine rote LED

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 2 Hz	
Ausgang 2 Signal nahe der Schwelle			LED blinkt 8 Hz	
qTeach verwendbar				LED on
Teach-in Modus	siehe Teach-in Anweisung			

Teach-In Description Level 1 & 2

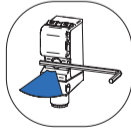
	Uxxx.P with 1 output	Uxxx.D; for Uxxx.D (retro) Level 1 = Level 2	Uxxx.P with 2 outputs
Level 1	1-Point Teach Output 1 Set the switchpoint SP of output 1 at the position of the object 	1-Point Teach Output 1 Set the switchpoint SP of output 1 at the position of the object 	1-Point Teach Output 1 Set the switchpoint SP of output 1 at the position of the object
Level 2	Window Teach set a window in which an object should be detected 	Scanning Range / Window Set the scanning range related to the analogue value. Output 1 is active if an object is within the scanning range 	1-point Teach Output 2 Set the switchpoint of output 2 at the position of the object

Teach-In Beschreibung Level 1 & 2

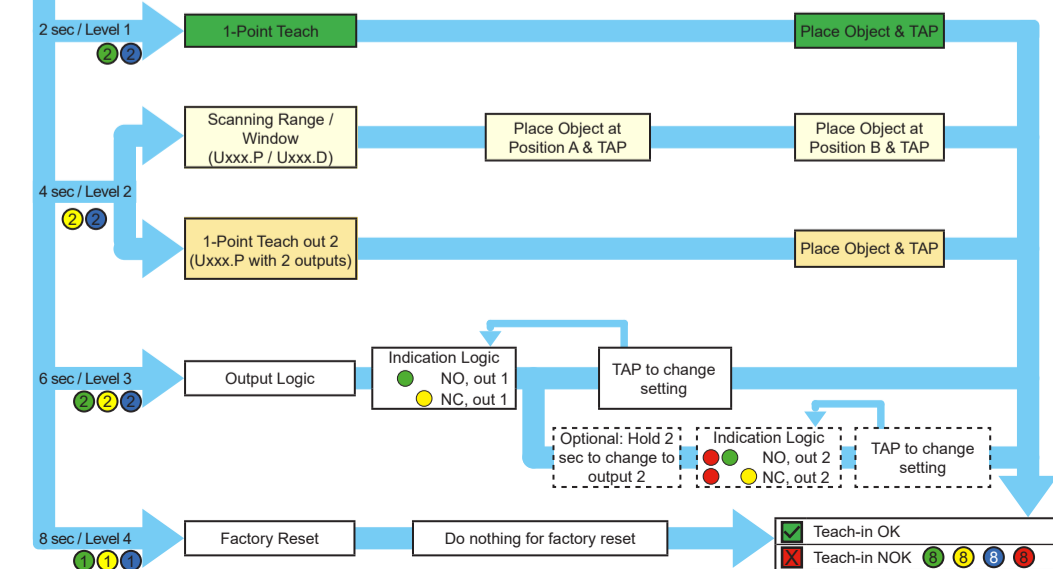
	Uxxx.P mit 1 Ausgang	Uxxx.D; bei Uxxx.D (retro) Level 1 = Level 2	Uxxx.P mit 2 Ausgängen
Level 1	1-Punkt Teach Ausgang 1 Setzt den Schallpunkt SP des Ausgang 1 an der Position des Objektes 	1-Punkt Teach Ausgang 1 Setzt den Schallpunkt SP des Ausgang 1 an der Position des Objektes 	1-Punkt Teach Ausgang 1 Setzt den Schallpunkt SP des Ausgang 1 an der Position des Objektes
Level 2	Fenster Teach Definiert ein Schallfenster, innerhalb welches ein Objekt erkannt werden soll 	Messbereich / Fenster Definiert den mit dem analogen Ausgang verknüpften Messbereich. Ausgang 1 ist aktiv, wenn sich ein Objekt innerhalb des Messbereichs befindet 	1-Punkt Teach Ausgang 2 Setzt den Schallpunkt SP des Ausgang 2 an der Position des Objektes

Teach-in Instruction

Enter Teach Level
- Place Tool as shown right or connect teach-in wire to Vs+.
- Blue LED is getting brighter 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 to the right.

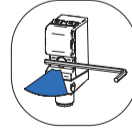


General Information
- qTeach locks 5 min after power up, the blue LED turns off.
- In teach mode the output changes to 0 V.
- During operation the teach wire should be connected to 0V.
- For external teach-in, connect teach wire to +Vs.
- External teach-in is always possible (no locking).
- Place tool > 12 sec. : Leave Teach-in without changes.

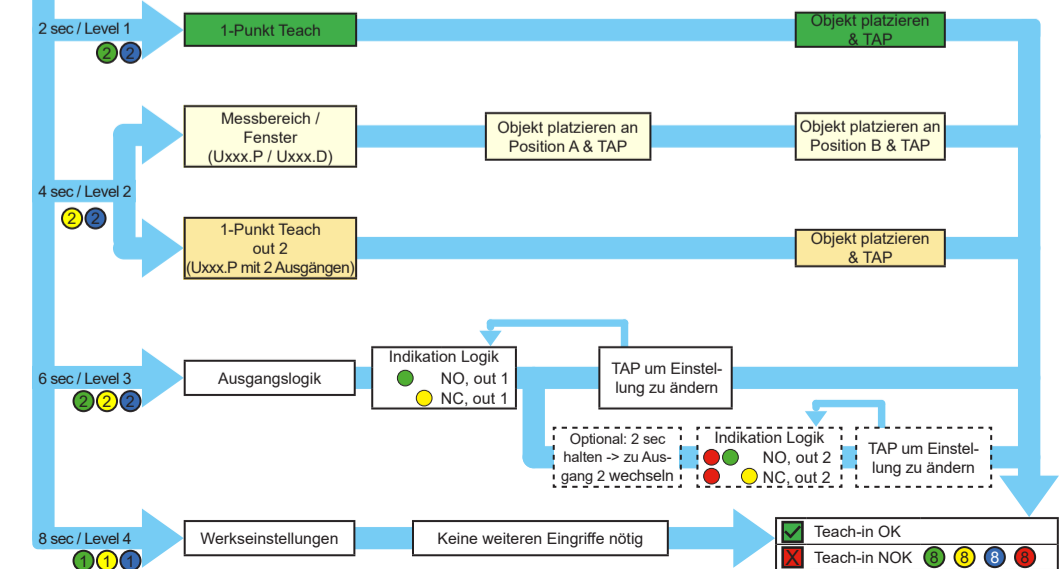


Teach-in Anleitung

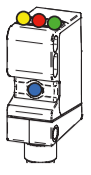
Teach Level auswählen
- Platziere das Werkzeug wie rechts gezeigt oder verbinde die Teachleitung mit +Vs
- Blaue LED leuchtet hell, wenn das Tool / Teach-In korrekt erkannt wird.
- Nach n Sek. entfernen, um das gewünschte Level auszuwählen.
Ein TAP ist eine kurze Berührung mit dem Werkzeug, wie rechts gezeigt.



Allgemeine Information
- qTeach verriegelt 5 min nach dem Einschalten, die blaue LED erlischt.
- Im Teachmodus wechselt der Ausgang auf 0 V.
- Im Normalbetrieb muss die Teachleitung auf 0 V gelegt werden.
- Für externes Teach-in, Teachleitung entsprechend mit Vs+ verbinden.
- Externes Teach-in ist immer möglich (keine Verriegelung).
- Werkzeug platzieren > 12 Sek. : Verlasse Teach-in ohne Änderungen.



Indication LED



Légende

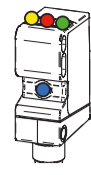
- LED ON
- LED clignotante 1 Hz
- LED clignotante 2 Hz
- LED clignotante 8 Hz

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

Indicazioni LED



Legenda

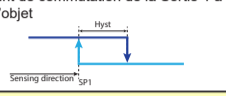
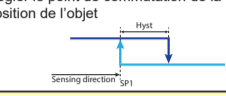
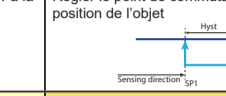
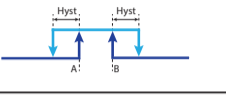
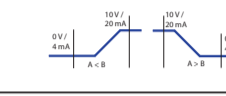
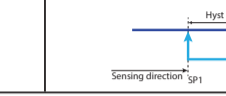
- LED on
- Lampeggiamento LED a 1 Hz
- Lampeggiamento LED a 2 Hz
- Lampeggiamento LED a 8 Hz

Modalità operativa

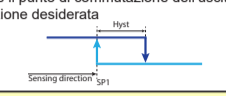

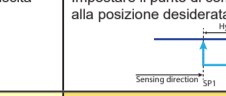
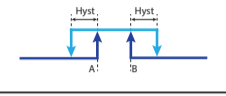
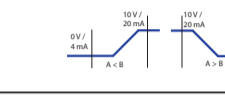
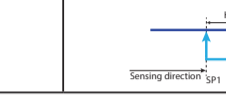
Indicazioni LED	Verde	Giallo	Rosso	Blu
Power On	●			
Corto circuito	①			
Uscita 1 attiva		●		
Uscita 1 prossima alla soglia		⑧		
Uscita 2 attiva			●	
Uscita 2 prossima alla soglia			⑧	
qTeach utilizzabile				●

Modalità di Teach-In: see Teach-In Instruction

Description Teach-In Niveau 1 & 2

	Uxxx.P avec 1 Sortie	Uxxx.D; pour Uxxx.D (rétro) Niveau 1 = Niveau 2	Uxxx.P avec 2 Sortie
Niveau 1	Sortie 1: Teach 1 Point Régler le point de commutation de la Sortie 1 à la position de l'objet 	Sortie 1: Teach 1 Point Régler le point de commutation de la Sortie 1 à la position de l'objet 	Sortie 1: Teach 1 Point Régler le point de commutation de la Sortie 1 à la position de l'objet 
Niveau 2	Teach fenêtre Régler une fenêtre dans laquelle un objet doit être détecté 	Plage de mesure / Fenêtre Régler la zone de mesure correspondante à la sortie analogique. La Sortie 1 est active si l'objet est dans la zone définie. 	Teach 1 Point Sortie 2 Régler le point de commutation de la Sortie 2 à la position de l'objet 

Descrizione livelli di Teach-in 1 e 2

	Uxxx.P con 1 uscita	Uxxx.D; per Uxxx.D (retro) Livello 1 = Livello 2	Uxxx.P con 2 uscite
Livello 1	Uscita digitale - teach ad 1 punto Impostare il punto di commutazione dell'uscita 1 alla posizione desiderata 	Uscita digitale - teach ad 1 punto Impostare il punto di commutazione dell'uscita digitale alla posizione desiderata 	Impostazione uscita 1 Impostare il punto di commutazione dell'uscita 1 alla posizione desiderata 
Livello 2	Soglia di commutazione a finestra Impostare una soglia di commutazione a finestra all'interno della quale rilevare l'oggetto 	Campo di misura / Finestra Impostare il range di misura relativo all'uscita analogica. Se l'uscita digitale non viene impostata nel livello 1 rimane sempre attiva all'interno del range di misura. 	Impostazione uscita 2 Impostare il punto di commutazione dell'uscita 2 alla posizione desiderata 

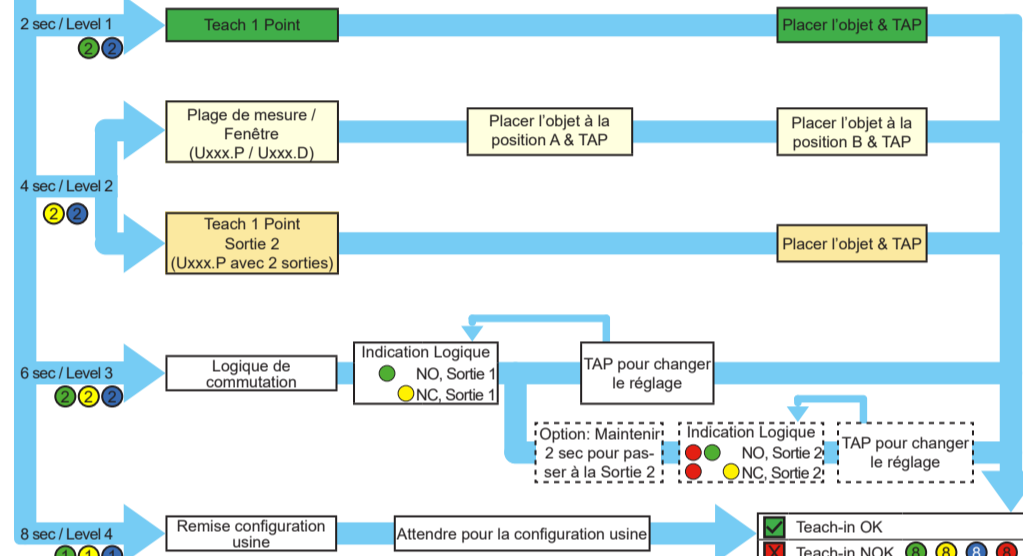
Instructions Teach-In

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



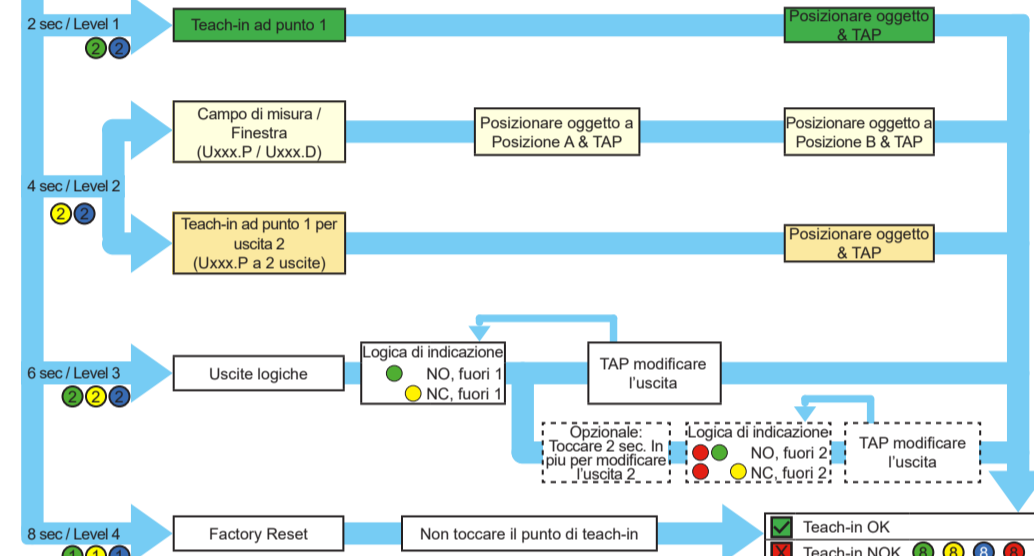
Istruccionees Teach-In

Inserisci il livello di conoscenza

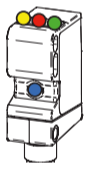
- Posizionare un utensile metallico sul punto di teach come mostrato a destra o collegare il cavo teach-in a +Vs
- L'illuminazione del LED blu aumenta di intensità se l'utensile/teach-in viene riconosciuto correttamente.
- Rilasciare una volta trascorsi i secondi indicati nel disegno sottostante in funzione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

LED 指示灯



图例

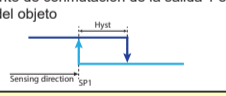
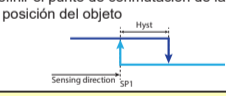
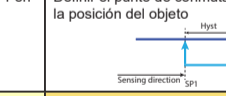
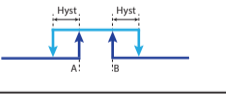
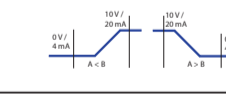
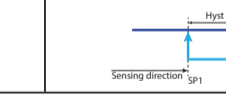
- LED 亮
- LED 闪烁 1 Hz
- LED 闪烁 2 Hz
- LED 闪烁 8 Hz

操作模式

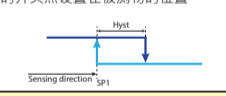
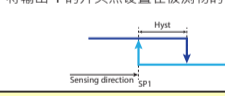

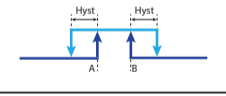
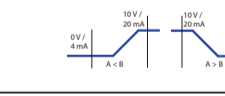
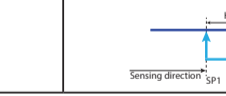
LED 指示灯	绿	黄	红	蓝
通电	●			
短路	①			
输出 1 激活		●		
输出 1 信号接近阈值		⑧		
输出 2 激活			●	
输出 2 信号接近阈值			⑧	
qTeach 可使用				●

Teach-in 模式: 详见 Teach-in 说明

Descripción Teach-In Nivel 1 & 2

	Uxxx.P con 1 salida	Uxxx.D; para Uxxx.D (retro) Nivel 1 = Nivel 2	Uxxx.P con 2 salida
Nivel 1	1 punto de enseñanza de salida 1 Definir el punto de conmutación de la salida 1 en la posición del objeto 	1 punto de enseñanza de salida 1 Definir el punto de conmutación de la salida 1 en la posición del objeto 	1 punto de enseñanza de salida 1 Definir el punto de conmutación de la salida 1 en la posición del objeto 
Nivel 2	Aprendizaje de ventana Definir una ventana de detección del objeto 	Rango de medición / Ventana Definir el intervalo de medición respecto a la salida analógica. La salida 1 se activa si detecta un objeto dentro del intervalo. 	1-Point Teach Salida 2 Definir el punto de conmutación de la salida 2 en la posición del objeto 

Teach-In 说明 1 级 & 2 级

	Uxxx.P 单输出	Uxxx.D; 用于 Uxxx.D (复古) 的 1 级=2 级	Uxxx.P 双输出
1 级	1 点设定 输出 1 将输出 1 的开关点设置在被测物的位置 	1 点设定 输出 1 将输出 1 的开关点设置在被测物的位置 	1 点设定 输出 1 将输出 1 的开关点设置在被测物的位置 
2 级	窗口设定 设置一个被测物应被检测到的窗口 	测量范围/示教窗口 设置与模拟值相对应的测量范围, 如果被测物处于测量范围内, 则输出 1 处于激活状态 	1 点设定 输出 2 将输出 2 的开关点设置在被测物的位置 

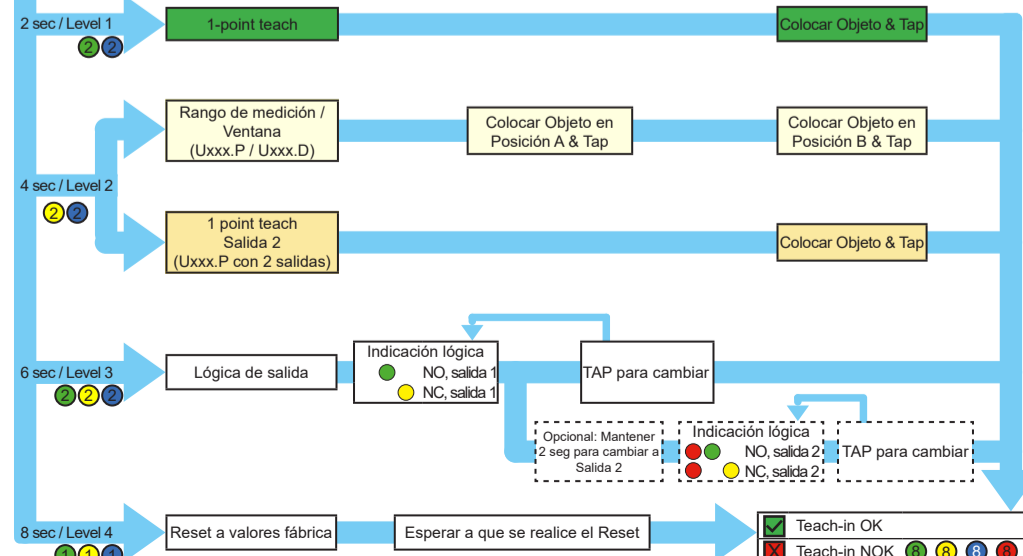
Instruccionees Teach-In

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



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点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.

