

# Ultrasonic sensors

02.2023/ Version 1.0  
11722623

UR18

EN  
DE  
FR  
IT  
ES  
CN



qTarget®  
qTeach®

www.baumer.com

**Baumer**

Baumer Electric AG - CH-8501 Frauenfeld  
Phone +41 (0)52 728 1122 - Fax +41 (0)52 728 1144

# 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

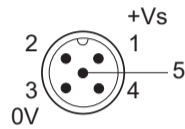
# Related Models

**UR18 Models:**  
UR18.D (Analog output)  
UR18.P (1-Point switch output)  
UR18.P (2-Point switch output)  
UR18.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

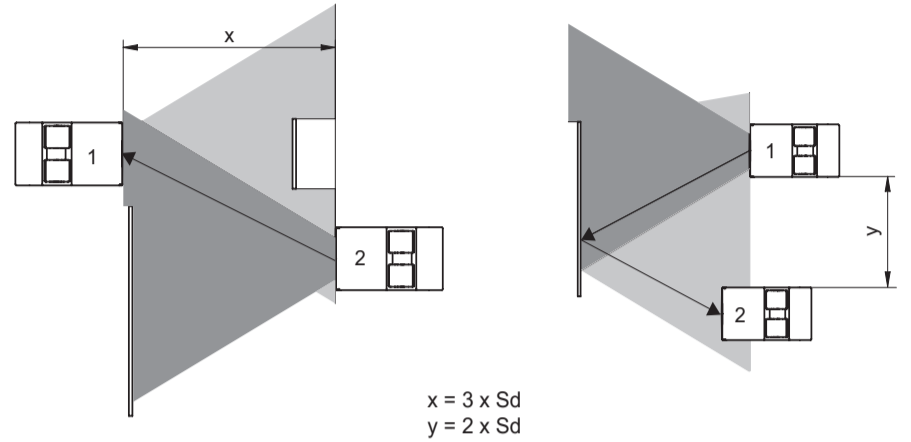
Minimal distance between two sensors

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

# 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				●

● 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				●

● Nur Sensoren mit 2 Ausgängen verfügen über eine rote LED

# Teach-In Description Level 1 & 2

	UF200.P with 1 output	UF200.D	UF200.P with 2 outputs
<b>Level 1</b>	<b>1-Point Teach Output 1</b> Set the switchpoint SP of output 1 at the position of the object	<b>1-Point Teach Output 1</b> Set the switchpoint SP of output 1 at the position of the object	<b>1-Point Teach Output 1</b> Set the switchpoint SP of output 1 at the position of the object
<b>Level 2</b>	<b>Window Teach</b> set a window in which an object should be detected	<b>Scanning Range / Window Teach</b> Set the scanning range related to the analogue value. Output 1 is active if an object is within the scanning range	<b>1-point Teach Output 2</b> Set the switchpoint of output 2 at the position of the object

# Teach-In Beschreibung Level 1 & 2

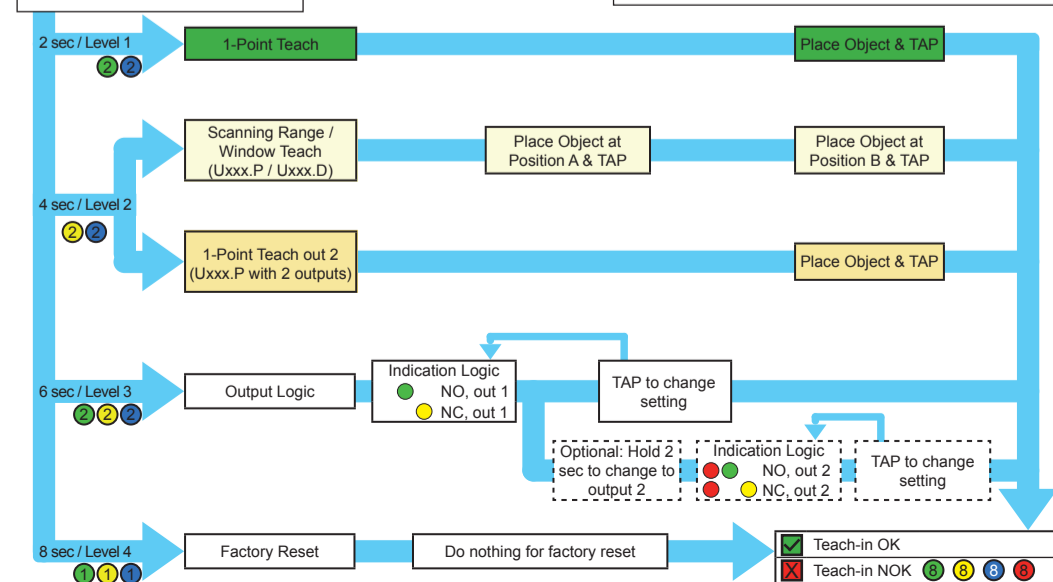
	UF200.P mit 1 Ausgang	UF200.D	UF200.P mit 2 Ausgängen
<b>Level 1</b>	<b>1-Punkt Teach Ausgang 1</b> Setzt den Schallpunkt SP des Ausgang 1 an der Position des Objektes	<b>1-Punkt Teach Ausgang 1</b> Setzt den Schallpunkt SP des Ausgang 1 an der Position des Objektes	<b>1-Punkt Teach Ausgang 1</b> Setzt den Schallpunkt SP des Ausgang 1 an der Position des Objektes
<b>Level 2</b>	<b>Fenster Teach</b> Definiert ein Schallfenster, innerhalb welches ein Objekt erkannt werden soll	<b>Messbereich / Fenster Teach</b> Definiert den mit dem analogen Ausgang verknüpften Messbereich. Ausgang 1 ist aktiv, wenn sich ein Objekt innerhalb des Messbereichs befindet	<b>1-Punkt Teach Ausgang 2</b> 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.

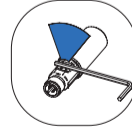


**General Information**  
- q Teach locks 5 min after power up, the blue LED turns off.  
- In teach mode the output changes to 0 V.  
- During operation the teach wire should be connected to 0V.  
- For external teach-in, connect teach wire to +Vs.  
- External teach-in is always possible (no locking).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

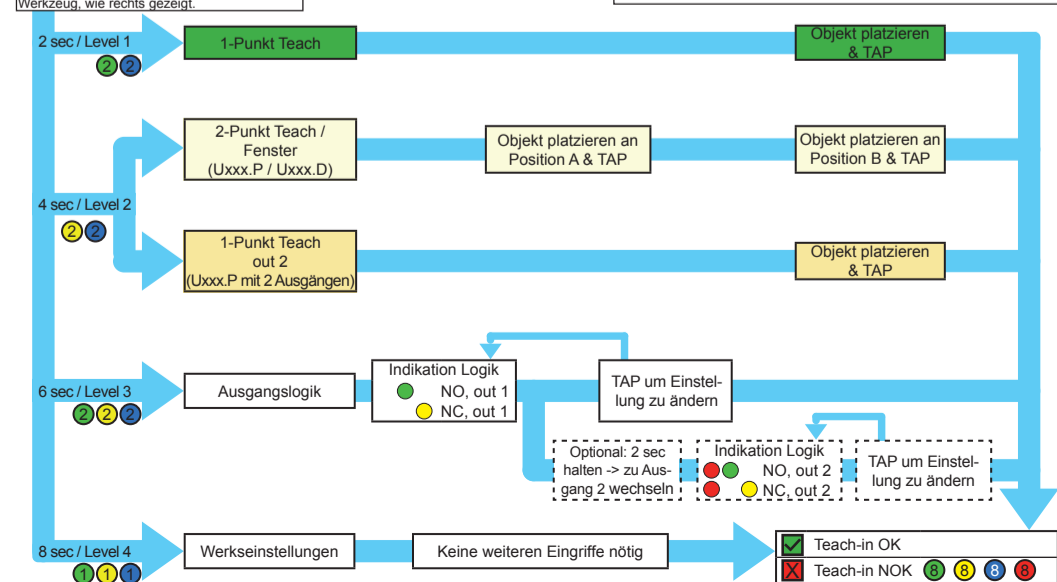


# Teach-in Anleitung

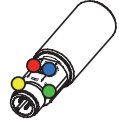
**Teach Level auswählen**  
- Platziere das Werkzeug wie rechts gezeigt oder verbinde die Teachleitung mit +Vs  
- Blaue LED leuchtet hell, wenn das Tool / Teach-In korrekt erkannt wird.  
- Nach n Sek. entfernen, um das gewünschte Level auszuwählen.  
Ein TAP ist eine kurze Berührung mit dem Werkzeug,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



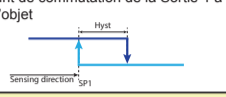
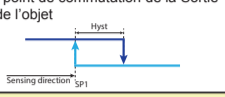
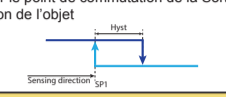
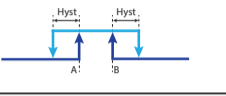
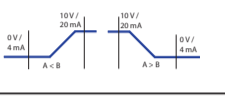
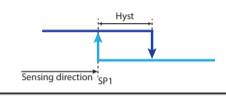
- LED ON
- ① LED clignotante 1 Hz
- ② LED clignotante 2 Hz
- ③ LED clignotante 8 Hz

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**

	UF200.P avec 1 Sortie	UF200.D	UF200.P avec 2 Sortie
<b>Niveau 1</b>	<b>Sortie 1: Teach 1 Point</b> Régler le point de commutation de la Sortie 1 à la position de l'objet 	<b>Sortie 1: Teach 1 Point</b> Régler le point de commutation de la Sortie 1 à la position de l'objet 	<b>Sortie 1: Teach 1 Point</b> Régler le point de commutation de la Sortie 1 à la position de l'objet 
<b>Niveau 2</b>	<b>Teach fenêtre</b> Régler une fenêtre dans laquelle un objet doit être détecté 	<b>Teach 2 Points / Fenêtre</b> Régler la zone de mesure correspondante à la sortie analogique. La Sortie 1 est active si l'objet est dans la zone définie. 	<b>Teach 1 Point Sortie 2</b> Régler le point de commutation de la Sortie 2 à la position de l'objet 

**Instructions Teach-In**

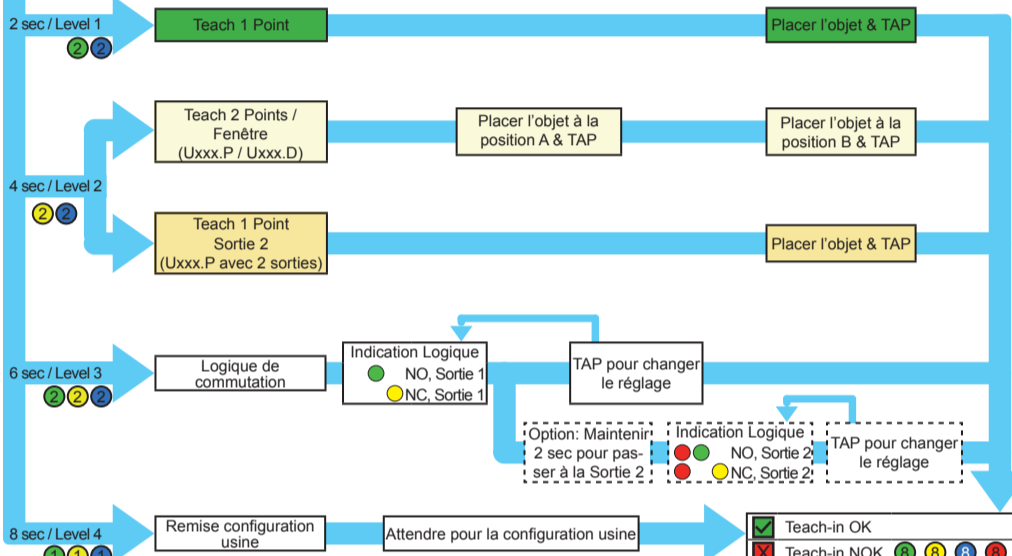
**Entrée en mode Teach:**

- 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

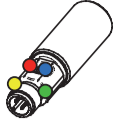


**Information Générale**

- 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**      **Modalità operativa** IT



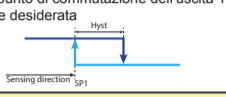
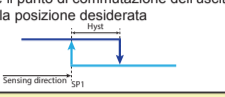
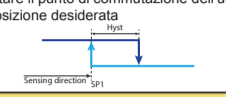
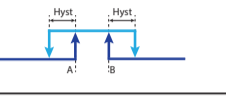
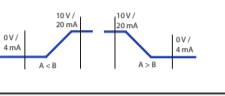
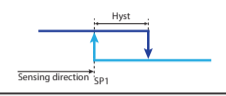
- LED on
- ① Lampeggiamento LED a 1 Hz
- ② Lampeggiamento LED a 2 Hz
- ⑧ Lampeggiamento LED a 8 Hz

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**

	UF200.P con 1 uscita	UF200.D	UF200.P con 2 uscite
<b>Livello 1</b>	<b>Uscita digitale – teach ad 1 punto</b> Impostare il punto di commutazione dell'uscita 1 alla posizione desiderata 	<b>Uscita digitale – teach ad 1 punto</b> Impostare il punto di commutazione dell'uscita digitale alla posizione desiderata 	<b>Impostazione uscita 1</b> Impostare il punto di commutazione dell'uscita 1 alla posizione desiderata 
<b>Livello 2</b>	<b>Soglia di commutazione a finestra</b> Impostare una soglia di commutazione a finestra all'interno della quale rilevare l'oggetto 	<b>Teach del range di misura a 2 punti</b> 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. 	<b>Impostazione uscita 2</b> Impostare il punto di commutazione dell'uscita 2 alla posizione desiderata 

**Istruzioni Teach-In**

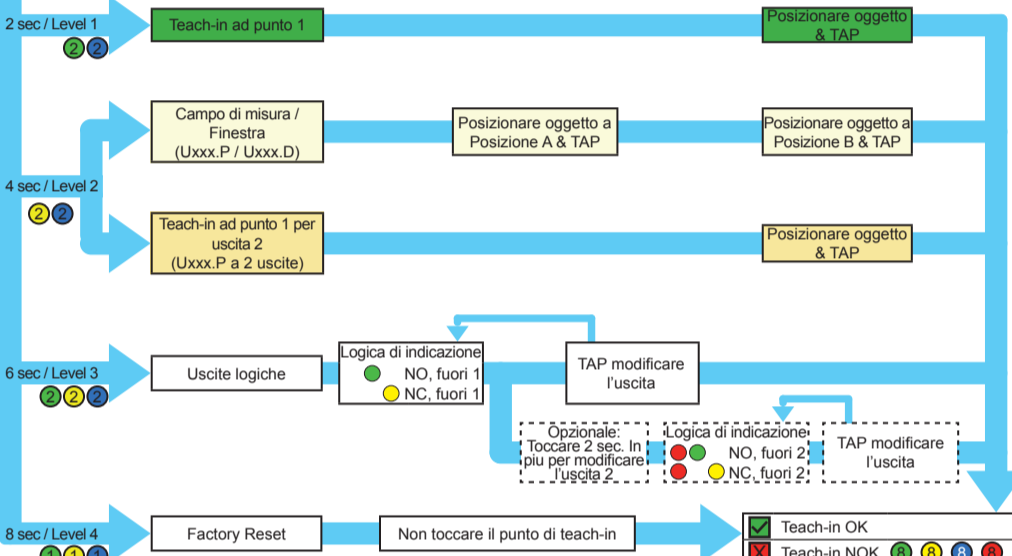
**Inserisci il livello di conoscenza**

- 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**      **Operating Mode** ES



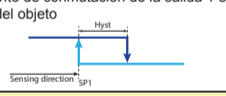
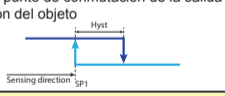
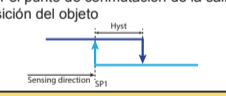
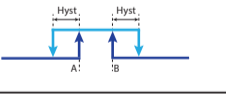
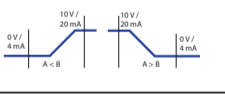
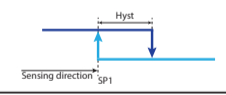
- LED ON
- ① LED parpadeo 1 Hz
- ② LED parpadeo 2 Hz
- ③ LED parpadeo 8 Hz

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**

	UF200.P con 1 salida	UF200.D	UF200.P con 2 salida
<b>Nivel 1</b>	<b>1 punto de enseñanza de salida 1</b> Definir el punto de conmutación de la salida 1 en la posición del objeto 	<b>1 punto de enseñanza de salida 1</b> Definir el punto de conmutación de la salida 1 en la posición del objeto 	<b>1 punto de enseñanza de salida 1</b> Definir el punto de conmutación de la salida 1 en la posición del objeto 
<b>Nivel 2</b>	<b>Aprendizaje de ventana</b> Definir una ventana de detección del objeto 	<b>2-Point Teach/Ventana</b> Definir el intervalo de medición respecto a la salida analógica. La salida 1 se activa si detecta un objeto dentro del intervalo. 	<b>1-Point Teach Salida 2</b> Definir el punto de conmutación de la salida 2 en la posición del objeto 

**Instrucciones Teach-In**

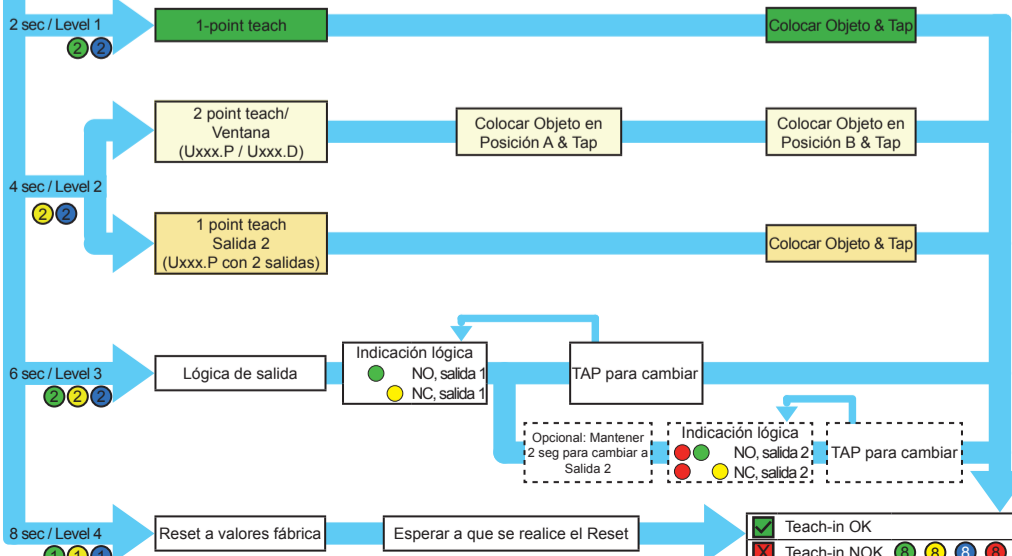
**Entrar en modo Teach:**

- 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 en 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**      **操作模式** CN



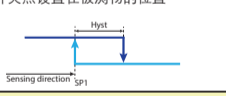
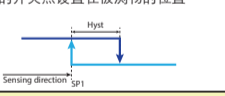
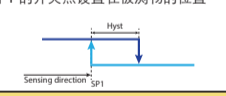
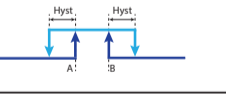
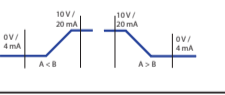
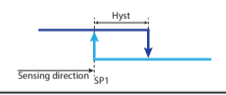
- LED 亮
- ① LED 闪烁 1 Hz
- ② LED 闪烁 2 Hz
- ⑧ LED 闪烁 8 Hz

LED 指示灯	绿	黄	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**

	UF200.P 单输出	UF200.D	UF200.P 双输出
<b>1级</b>	<b>1点设定 输出 1</b> 将输出 1 的开关点设置在被测物的位置 	<b>1点设定 输出 1</b> 将输出 1 的开关点设置在被测物的位置 	<b>1点设定 输出 1</b> 将输出 1 的开关点设置在被测物的位置 
<b>2级</b>	<b>窗口设定</b> 设置一个被测物应被检测到的窗口 	<b>2点设定/窗口设定</b> 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 	<b>1点设定 输出 2</b> 将输出 2 的开关点设置在被测物的位置 

**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



**总结:**

- 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 sec.: 在等级设定过程中而不做任何更改.

