Ultrasonic sensors

11.2024/ Version 2.0
11722620

U300

EN DE FR IT ES CN

NexSonic ®
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									
32								8	0
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, LED status indicators and more

Available Additional Data:
Switch counter, boot cycles, operation hours, device temperature, operating voltage, histograms

Mounting Instructions

Mindestabstand zwischen zwei Sensoren

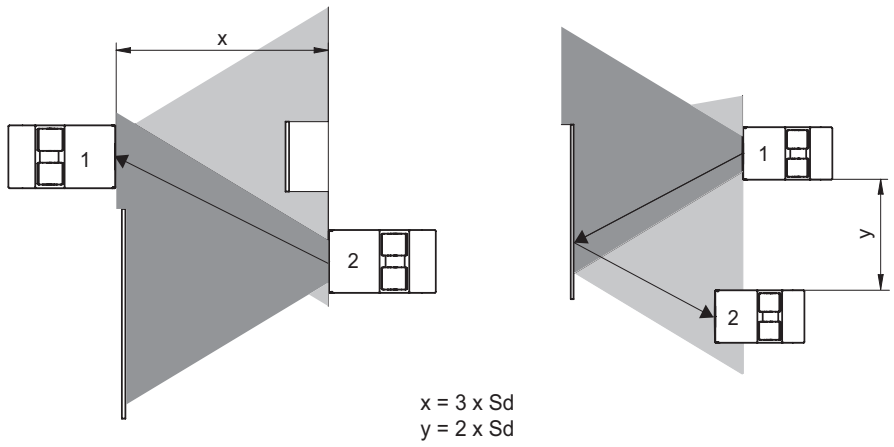
Minimal distance between two sensors

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



x = 3 x Sd
y = 2 x Sd

Related Models

U300 Models:
U300.D (Analog output)
U300.P (1-Point switch output)
U300.P (2-Point switch output)
U300.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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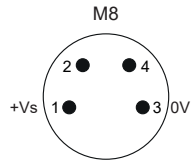
Connection Diagrams



	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

- 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

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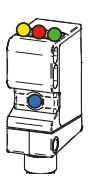
LED Indication



Only sensors with 2 outputs do have a red LED

Legend

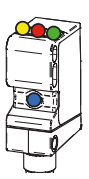
- LED on
- 1 LED flashing 1 Hz
- 2 LED flashing 2 Hz
- 8 LED flashing 8 Hz

Operating Mode

EN

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	see Teach-in Instruction			

LED Anzeige



Nur Sensoren mit 2 Ausgängen verfügen über eine rote LED

Legende

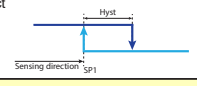
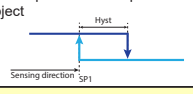
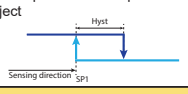
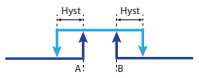
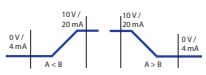
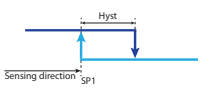
- LED leuchtet
- 1 LED blinkt 1 Hz
- 2 LED blinkt 2 Hz
- 8 LED blinkt 8 Hz

Betriebsmodus

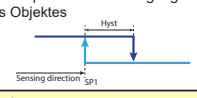
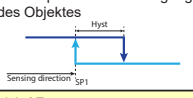
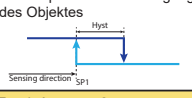
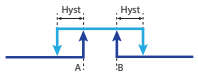
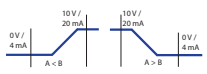
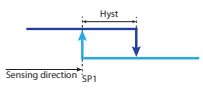
DE

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

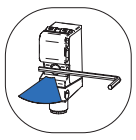
Teach-In Beschreibung Level 1 & 2

	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	1-Punkt Teach Ausgang 1	1-Punkt Teach Ausgang 1
	Setzt den Schaltpunkt SP des Ausgang 1 an der Position des Objektes 	Setzt den Schaltpunkt SP des Ausgang 1 an der Position des Objektes 	Setzt den Schaltpunkt SP des Ausgang 1 an der Position des Objektes 
Level 2	Fenster Teach	Messbereich / Fenster	1-Punkt Teach Ausgang 2
	Definiert ein Schaltfenster, innerhalb welches ein Objekt erkannt werden soll 	Definiert den mit dem analogen Ausgang verknüpften Messbereich. Ausgang 1 ist aktiv, wenn sich ein Objekt innerhalb des Messbereichs befindet 	Setzt den Schaltpunkt SP des Ausgang 2 an der Position des Objektes 

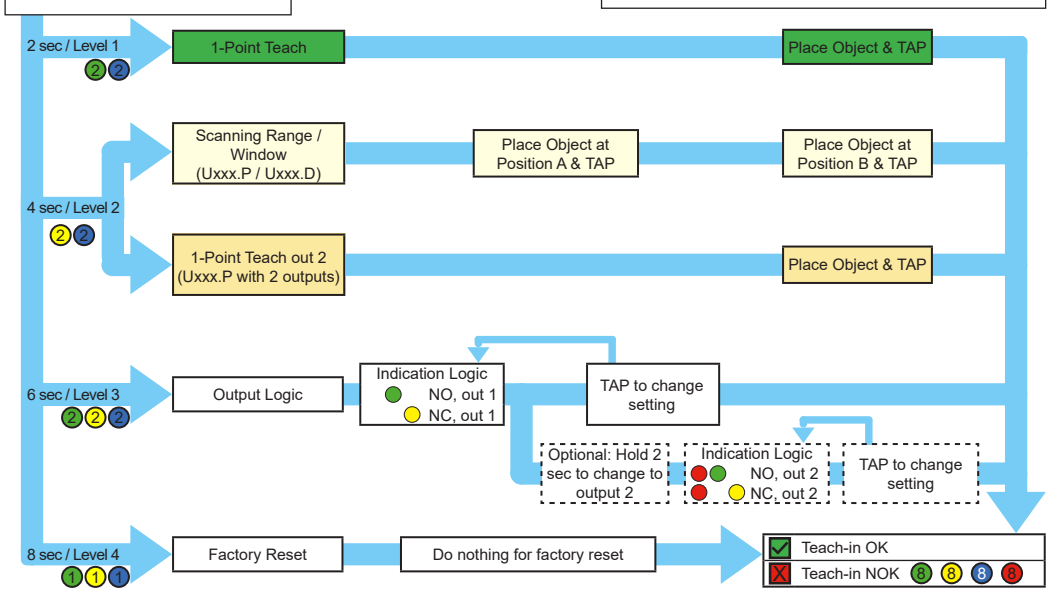
Teach-in Instruction

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.



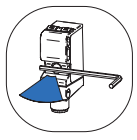
General Information
- qTeach locks 5 min after power up, the blue LED turns off.
- In teach mode the output changes to 0 V.
- During operation the teach wire should be connected to 0V.
- For external teach-in, connect teach wire to +Vs.
- External teach-in is always possible (no locking).
- Place tool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



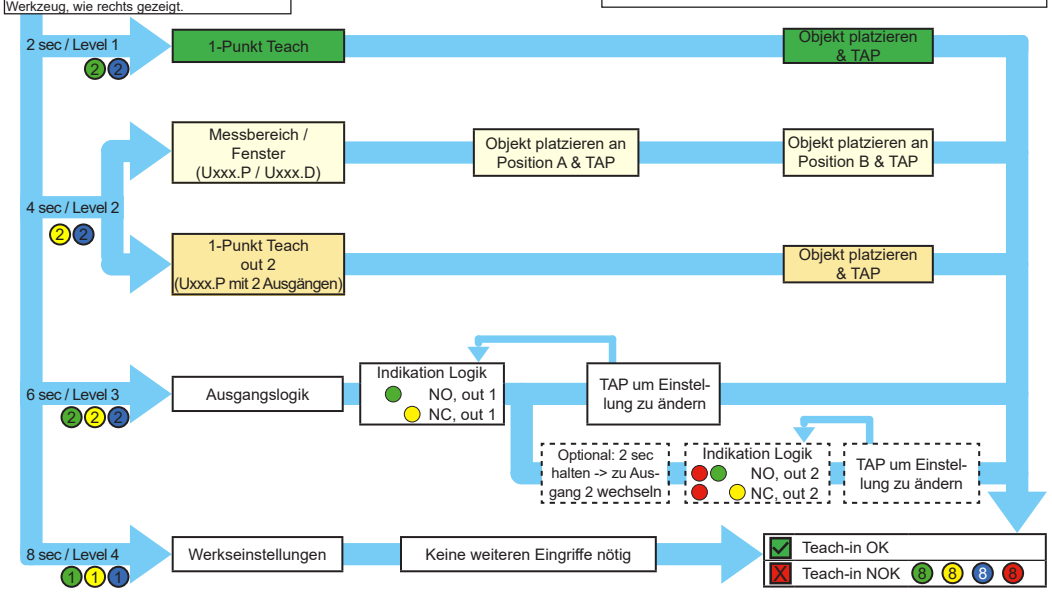
Teach-in Anleitung

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.

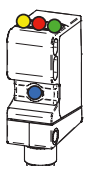
Ein TAP ist eine kurze Berührung mit dem Werkzeug, wie rechts gezeigt.



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

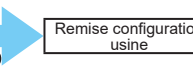
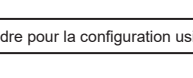
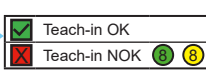
- LED ON
- 1 LED clignotante 1 Hz
- 2 LED clignotante 2 Hz
- 8 LED clignotante 8 Hz

Mode de fonctionnement FR

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

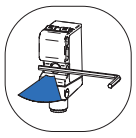
Description Teach-In Niveau 1 & 2

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

Instructions Teach-In

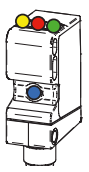
Entrée en mode Teach:
- Placer l'outil comme indiqué ci-contre ou connecter le fil Teach-in au +Vs
- La LED bleu devient plus brillante si l'outil / Teach-in est reconnu correctement
- Enlever après n sec. en fonction du niveau de réglage souhaité

Un TAP est une touche courte de l'outi comme présenté ci-contre



Information Générale
- qTeach se verrouille 5 min après la mise tension, la LED bleu 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, connecteur 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

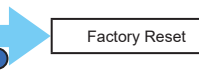
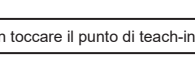
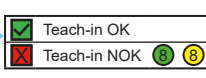
- LED on
- 1 Lampeggiamento LED a 1 Hz
- 2 Lampeggiamento LED a 2 Hz
- 8 Lampeggiamento LED a 8 Hz

Modalità operativa IT

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

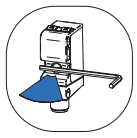
Descrizione livelli di Teach-in 1 e 2

	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	Uscita digitale – teach ad 1 punto	Impostazione uscita 1
	Impostare il punto di commutazione dell'uscita 1 alla posizione desiderata 	Impostare il punto di commutazione dell'uscita digitale alla posizione desiderata 	Impostare il punto di commutazione dell'uscita 1 alla posizione desiderata 
Livello 2	Soglia di commutazione a finestra	Campo di misura / Finestra	Impostazione uscita 2
	Impostare una soglia di commutazione a finestra all'interno della quale rilevare l'oggetto 	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.	Impostare il punto di commutazione dell'uscita 2 alla posizione desiderata 

Instrucciones Teach-In

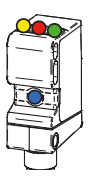
Inserisci il livello di conoscenza
- Posizionare un utensile metallico sul punto di teach come mostrato a destra o collegare il cavo teach-in a +Vs.
- L'illuminazione del LED blu aumenta di intensità se l'utensile/teach-in viene riconosciuto correttamente.
- Rilasciare una volta trascorsi i secondi indicati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

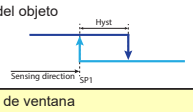
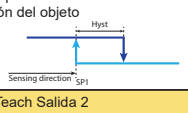
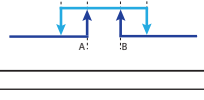
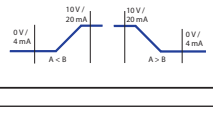
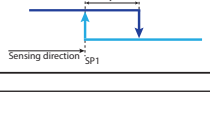
- LED ON
- 1 LED parpadeo 1 Hz
- 2 LED parpadeo 2 Hz
- 8 LED parpadeo 8 Hz

Operating Mode ES

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

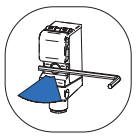
Descripción Teach-In Nivel 1 & 2

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

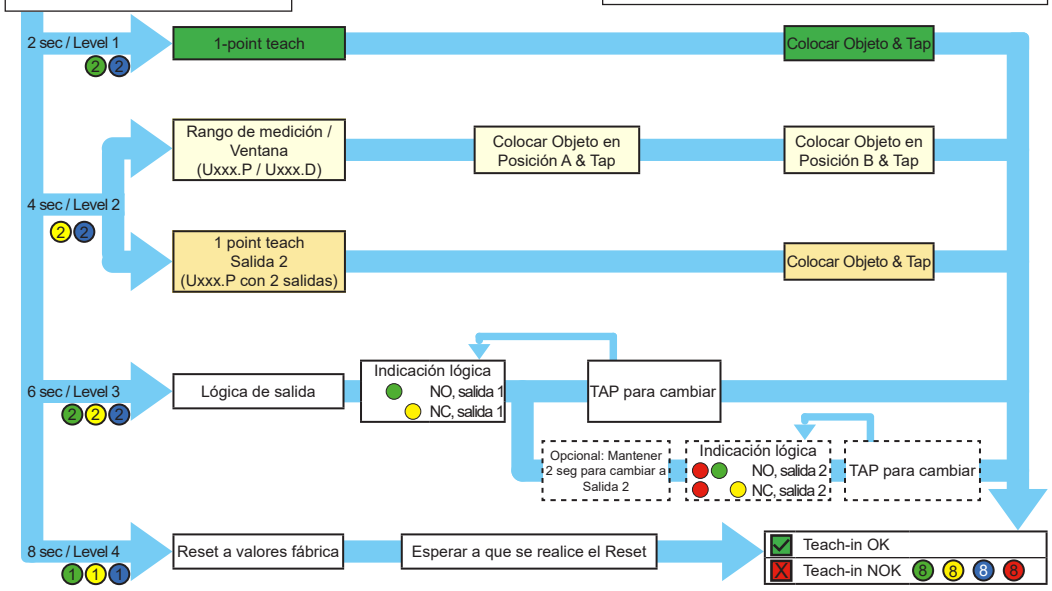
Instrucciones Teach-In

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

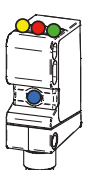
TAP es un toque corto de la herramienta



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 deteach 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



LED 指示灯



图例

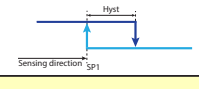
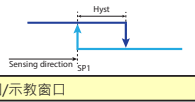
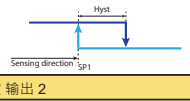
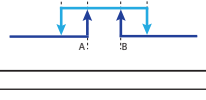
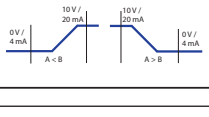
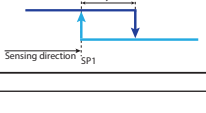
- LED 亮
- 1 LED 闪烁 1 Hz
- 2 LED 闪烁 2 Hz
- 8 LED 闪烁 8 Hz

操作模式 CN

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

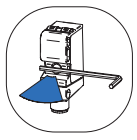
Teach-In 说明 1 级 & 2 级

	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	1 点设定 输出 1	1 点设定 输出 1
	将输出 1 的开关点设置在被测物的位置 	将输出 1 的开关点设置在被测物的位置 	将输出 1 的开关点设置在被测物的位置 
2级	窗口设定	测量范围/示教窗口	1 点设定 输出 2
	设置一个被测物应被检测到的窗口 	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 	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.
- 在通常情况西设定先接至 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.