

# Ultrasonic sensors

09.2023/ Version 1.0  
11725185

UF200



EN  
DE  
FR  
IT  
ES  
CN

| 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, LED status indicators and more

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

qTarget®  
qTeach®

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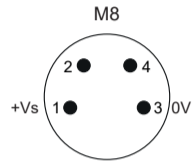
## Related Models

**UF200 Models:**  
UF200.D (Analog output)  
UF200.P (1-Point switch output)  
UF200.P (2-Point switch output)  
UF200.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

# Mounting Instructions

Mindestabstand zwischen zwei Sensoren

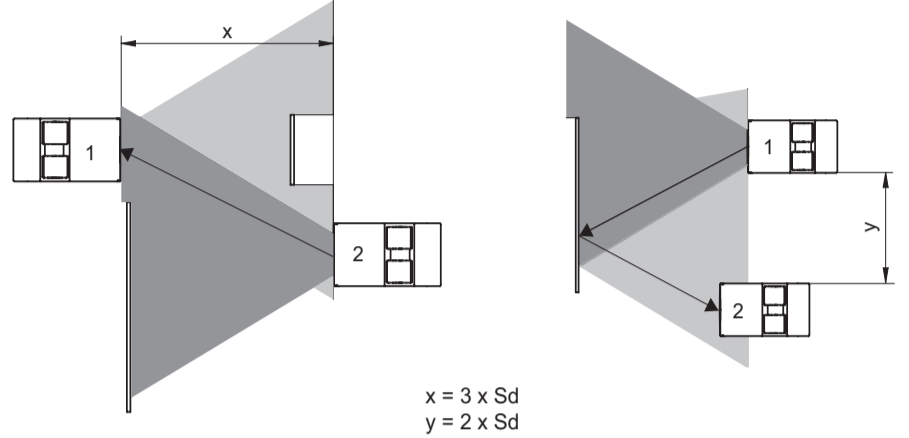
Minimal distance between two sensors

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                           | ●                        |        |       |       |
| Short circuit                      | ● (1)                    |        |       |       |
| Output 1 active                    |                          | ● (2)  |       |       |
| Output 1 signal close to threshold |                          | ● (8)  |       |       |
| Output 2 active                    |                          |        | ● (3) |       |
| Output 2 signal close to threshold |                          |        | ● (8) |       |
| qTeach not locked                  |                          |        |       | ● (4) |
| 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                    | ●                        |       |       |       |
| Kurzschluss                        | ● (1)                    |       |       |       |
| Ausgang 1 aktiv                    |                          | ● (2) |       |       |
| Ausgang 1 Signal nahe der Schwelle |                          | ● (8) |       |       |
| Ausgang 2 aktiv                    |                          |       | ● (3) |       |
| Ausgang 2 Signal nahe der Schwelle |                          |       | ● (8) |       |
| qTeach verwendbar                  |                          |       |       | ● (4) |
| Teach-in Modus                     | siehe Teach-in Anweisung |       |       |       |

## Teach-In Description Level 1 & 2

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

## Teach-In Beschreibung Level 1 & 2

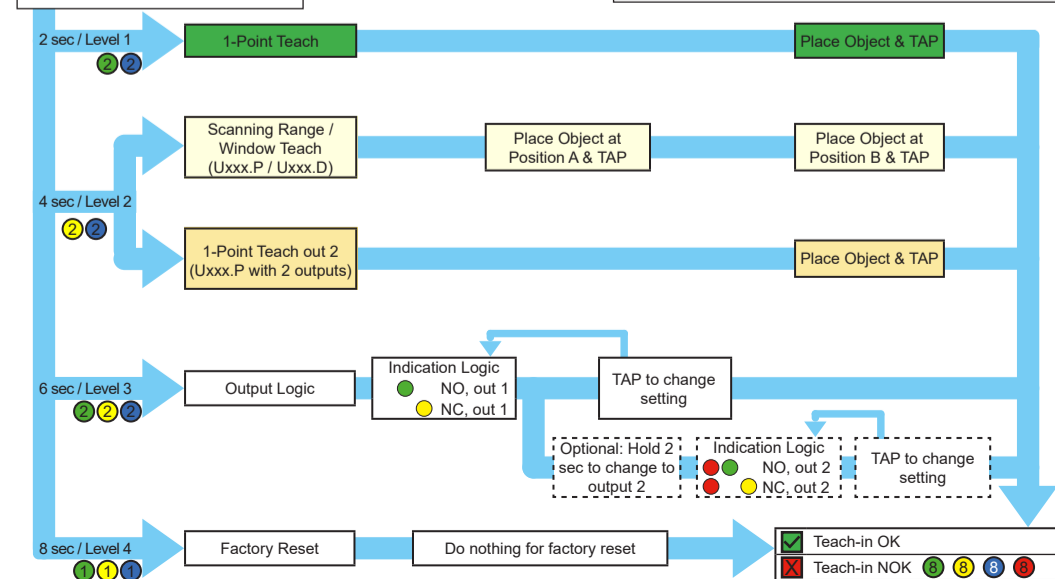
|                | UF200.P mit 1 Ausgang   | UF200.D; bei UF200.D (retro) Level 1 = Level 2  | UF200.P mit 2 Ausgängen   |
|----------------|---|---|---|
| <b>Level 1</b> | <b>1-Punkt Teach Ausgang 1</b><br>Setzt den Schallpunkt SP des Ausgang 1 an der Position des Objektes<br> | <b>1-Punkt Teach Ausgang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

## 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.

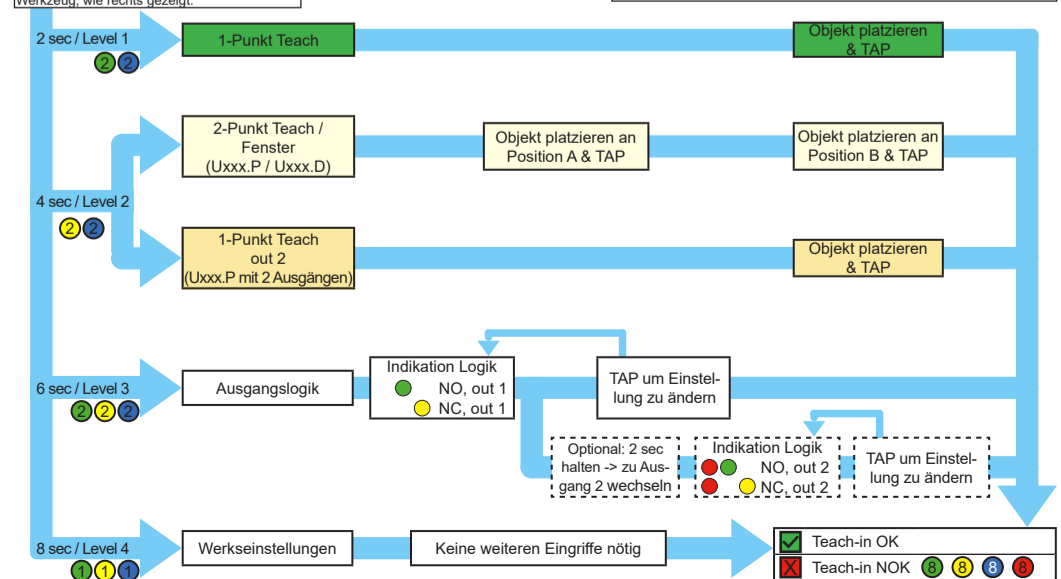


## Teach-in Anleitung

**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**

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

**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'outil 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, 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

**Flowchart:**

- 2 sec / Level 1: Teach 1 Point (Placer l'objet & TAP)
- 4 sec / Level 2: Teach 2 Points / Fenêtre (Uxxx.P / Uxxx.D) (Placer l'objet à la position A & TAP, Placer l'objet à la position B & TAP)
- 6 sec / Level 3: Teach 1 Point Sortie 2 (Uxxx.P avec 2 sorties) (Placer l'objet & TAP)
- 6 sec / Level 3: Logique de commutation (Indication Logique: NO, Sortie 1; NC, Sortie 1) (TAP pour changer le réglage)
- 8 sec / Level 4: Remise configuration usine (Attendre pour la configuration usine)
- Final: Teach-in OK (LED 1, 2, 3, 4) or Teach-in NOK (LED 5, 6, 7, 8)

**Indicazioni LED** **Legenda** **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**

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

**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 della 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.

**Flowchart:**

- 2 sec / Level 1: Teach-in ad punto 1 (Posizionare oggetto & TAP)
- 4 sec / Level 2: Campo di misura / Finestra (Uxxx.P / Uxxx.D) (Posizionare oggetto a Posizione A & TAP, Posizionare oggetto a Posizione B & TAP)
- 6 sec / Level 3: Uscite logiche (Logica di indicazione: NO, fuori 1; NC, fuori 1) (TAP modificare l'uscita)
- 8 sec / Level 4: Factory Reset (Non toccare il punto di teach-in)
- Final: Teach-in OK (LED 1, 2, 3, 4) or Teach-in NOK (LED 5, 6, 7, 8)

**Información LED** **Leyenda** **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**

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

**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-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

**Flowchart:**

- 2 sec / Level 1: 1-point teach (Colocar Objeto & Tap)
- 4 sec / Level 2: 2 point teach / Ventana (Uxxx.P / Uxxx.D) (Colocar Objeto en Posición A & Tap, Colocar Objeto en Posición B & Tap)
- 6 sec / Level 3: 1 point teach Salida 2 (Uxxx.P con 2 salidas) (Colocar Objeto & Tap)
- 6 sec / Level 3: Lógica de salida (Indicación lógica: NO, salida 1; NC, salida 1) (TAP para cambiar)
- 8 sec / Level 4: Reset a valores fábrica (Esperar a que se realice el Reset)
- Final: Teach-in OK (LED 1, 2, 3, 4) or Teach-in NOK (LED 5, 6, 7, 8)

**LED 指示灯** **图例** **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**

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

**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.
- 外部设定或永久有效 (无自锁)
- 放置工具 > 12 sec.: 在等级设定过程中而不做任何更改.

**Flowchart:**

- 2 sec / Level 1: 1点设定 (放置被测物并触碰)
- 4 sec / Level 2: 2点设定 / 窗口设定 (Uxxx.P / Uxxx.D) (将被测物放置于位置 A 并触碰, 将被测物放置于位置 B 并触碰)
- 6 sec / Level 3: 1点设定 输出 2 (Uxxx.P 有2个输出) (放置被测物并触碰)
- 6 sec / Level 3: 输出逻辑 (指标逻辑: NO, 出 1; NC, 出 1) (触碰来改变设定)
- 8 sec / Level 4: 恢复出厂设置 (期间不进行任何设定)
- Final: Teach-in OK (LED 1, 2, 3, 4) or Teach-in NOK (LED 5, 6, 7, 8)