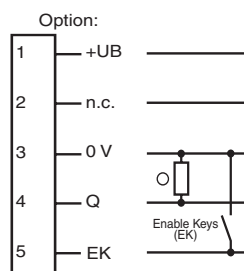
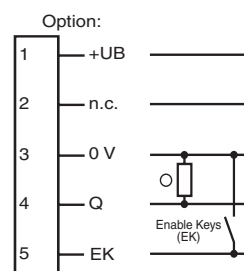


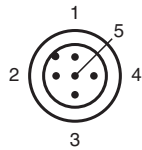
## Elektrischer Anschluss



## Electrical connection



○ = Hellschaltung  
● = Dunkelschaltung



○ = Light on  
● = Dark on

## Technische Daten

### Allgemeine Daten

|                  |  |
|------------------|--|
| Tastbereich      | 2 ... 12 mm  |
| Referenzobjekt   | Kupfer-Schweißelektrode, Durchmesser: 16 mm, Stirnfläche: 6 mm |
| Lichtsender      | LED  |
| Lichtart         | rot, Wechsellicht, 640 nm                                      |
| Fremdlichtgrenze | Gleichlicht 40000 Lux, Wechsellicht 5000 Lux                   |
| Kippwinkel       | ± 1,5 °  |
| Lagetoleranz     | ± 2 mm   |

### Anzeigen/Bedienelemente

|                  |   |
|------------------|---|
| Betriebsanzeige  | LED grün: Power on  |
| Funktionsanzeige | LED gelb: Schaltzustand<br>LED rot: Vorausfallanzeige   |
| Teach-In-Anzeige | LED, grün/gelb blinkend (ca. 4 Hz)<br>Teach Fehler: LEDs gelb/grün; gegenphasiges Blinken; 8,0 Hz |
| Bedienelemente   | Teach-In-Taste  |

### Elektrische Daten

|                  |       |                |
|------------------|-------|----------------|
| Betriebsspannung | $U_B$ | 10 ... 30 V DC |
| Leerlaufstrom    | $I_0$ | ≤ 70 mA        |

### Eingang

|                  |                  |
|------------------|------------------|
| Funktionseingang | Enable Keys (EK) |
|------------------|------------------|

### Ausgang

|                |   |        |
|----------------|---|--------|
| Schaltungsart  | hellschaltend   |        |
| Signalausgang  | Schaltausgang PNP Schließer UND-Verknüpfung beider Sensorkanäle kurzschlussfest verpolgeschützt |        |
| Schaltstrom    | max. 100 mA   |        |
| Schaltfrequenz | f   | 100 Hz |
| Ansprechzeit   | 5 ms  |        |

### Umgebungsbedingungen

|                     |   |
|---------------------|---|
| Umgebungstemperatur | 0 ... 50 °C (32 ... 122 °F)<br>Die Schaltgenauigkeit bleibt erhalten, wenn die Umgebungstemperatur nach dem Teach-In nicht mehr als ±7 °C abweicht. |
| Lagertemperatur     | -20 ... 70 °C (-4 ... 158 °F)   |

### Mechanische Daten

|           |                                |
|-----------|--------------------------------|
| Schutzart | IP67                           |
| Anschluss | Gerätestecker M12 x 1, 5-polig |

### Material

|               |                               |
|---------------|-------------------------------|
| Gehäuse       | PC + ABS                      |
| Lichtaustritt | kratzfeste Mineralglasscheibe |

### Masse

### Normen- und Richtlinienkonformität

|                            |  |
|----------------------------|--|
| Normenkonformität          | EN 60947-5-2:2007<br>IEC 60947-5-2:2007                            |
| Schock- und Stoßfestigkeit | IEC / EN 60068, Halb-Sinus, 50 g je X, Y und Z Richtung            |
| Vibrationsfestigkeit       | IEC / EN 60068-2-6, Sinus, 10 - 150 Hz, 5 g je X, Y und Z Richtung |

### Zulassungen und Zertifikate

|               |  |
|---------------|--|
| Schutzklasse  | II, Bemessungsspannung ≤ 250 V AC bei Verschmutzungsgrad 1-2 nach IEC 60664-1  |
| UL-Zulassung  | cULus Listed   |
| CCC-Zulassung | Produkte, deren max. Betriebsspannung ≤ 36 V ist, sind nicht zulassungspflichtig und daher nicht mit einer CCC-Kennzeichnung versehen. |

## Adressen/Addresses



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Reflexionslichttaster, energetisch  
mit Gerätestecker M12 x 1, 5-polig  
Diffuse mode sensor  
with 5-pin, M12 x 1 connector  
**WTS10-12-4016/103/105**



Part. 207057  
Date: 02/20/2018  
Doc. 45-2441F  
DIN A3 -> A7

**PEPPERL+FUCHS**  
SENSING YOUR NEEDS

## Technical data

### General specifications

|                     |   |
|---------------------|---|
| Detection range     | 2 ... 12 mm   |
| Reference target    | Copper welding-electrode Diameter: 16 mm, Front end: 6 mm |
| Light source        | LED   |
| Light type          | modulated visible red light, 640 nm                       |
| Ambient light limit | continuous light 40000 Lux, Modulated light 5000 Lux      |
| Tilting angle       | ± 1.5 °   |
| Position tolerance  | ± 2 mm  |

### Indicators/operating means

|                     |   |
|---------------------|---|
| Operation indicator | LED green: Power on   |
| Function indicator  | LED yellow: switching state<br>LED red: Pre-fault indication  |
| Teach-In indicator  | LED, green/yellow flashing (approx. 4 Hz)<br>Teach Error: LED green/yellow non equiphase flashing; 8.0 Hz |
| Control elements    | Teach-In key  |

### Electrical specifications

|                        |       |                |
|------------------------|-------|----------------|
| Operating voltage      | $U_B$ | 10 ... 30 V DC |
| No-load supply current | $I_0$ | ≤ 70 mA        |

### Input

|                |                  |
|----------------|------------------|
| Function input | Enable keys (EK) |
|----------------|------------------|

### Output

|                |  |
|----------------|--|
| Switching type | light on   |
| Signal output  | switch output PNP NO contact AND logic coupling of both sensor channels short-circuit protected reverse polarity protected |

|                     |             |        |
|---------------------|-------------|--------|
| Switching current   | max. 100 mA |        |
| Switching frequency | f           | 100 Hz |
| Response time       | 5 ms        |        |

### Ambient conditions

|                     |  |
|---------------------|--|
| Ambient temperature | 0 ... 50 °C (32 ... 122 °F)<br>The switching accuracy will remain, if the temperature after Teach-In does not varies more than ±7 °C |
| Storage temperature | -20 ... 70 °C (-4 ... 158 °F)  |

### Mechanical specifications

|                      |                          |
|----------------------|--------------------------|
| Degree of protection | IP67                     |
| Connection           | 5-pin, M12 x 1 connector |

### Material

|              |                                      |
|--------------|--------------------------------------|
| Housing      | PC + ABS                             |
| Optical face | Scratch resistant mineral glass lens |

### Mass

### Compliance with standards and directives

|                             |   |
|-----------------------------|---|
| Standard conformity         | EN 60947-5-2:2007<br>IEC 60947-5-2:2007                                   |
| Shock and impact resistance | IEC / EN 60068, half-sine, 50 g in each X, Y and Z directions             |
| Vibration resistance        | IEC / EN 60068-2-6, Sinus, 10 - 150 Hz, 5 g in each X, Y and Z directions |

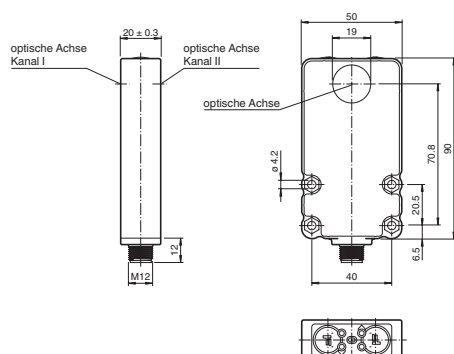
### Approvals and certificates

|                  |   |
|------------------|---|
| Protection class | II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1 |
| UL approval      | cULus Listed  |
| CCC approval     | CCC approval / marking not required for products rated ≤ 36 V                   |

## Sicherheitshinweise:

- Vor der Inbetriebnahme Betriebsanleitung lesen
- Anschluss, Montage und Einstellung nur durch Fachpersonal
- Kein Sicherheitsbauteil gemäß EU-Maschinenrichtlinie

## Abmessungen

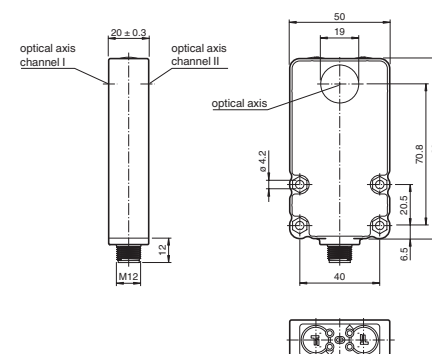


alle Maße in mm

## Security Instructions:

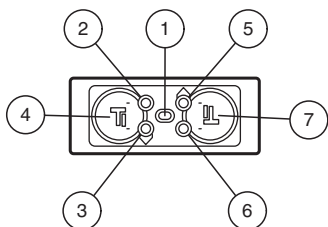
- Read the operating instructions before attempting commissioning
- Installation, connection and adjustments should only be undertaken by specialist personnel
- Not a safety component in accordance with the EU Machinery Directive

## Dimensions



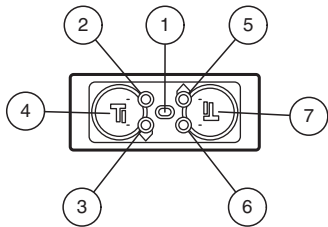
all dimensions in mm

## Anzeigen/Bedienelemente



|   |                   |      |
|---|-------------------|------|
| 1 | LED Power On      | grün |
| 2 | LED Kanal I       | rot  |
| 3 | LED Kanal I       | gelb |
| 4 | Teach-In Kanal I  |      |
| 5 | LED Kanal II      | gelb |
| 6 | LED Kanal II      | rot  |
| 7 | Teach-In Kanal II |      |

## Indicators/operating means



|   |                     |        |
|---|---------------------|--------|
| 1 | LED Power On        | green  |
| 2 | LED channel I       | red    |
| 3 | LED channel I       | yellow |
| 4 | Teach-In channel I  |        |
| 5 | LED channel II      | yellow |
| 6 | LED channel II      | red    |
| 7 | Teach-In channel II |        |

### Signalamplitude Signal amplitude Amplitude du signal

### Amplitud de señal Ampezza del segnale

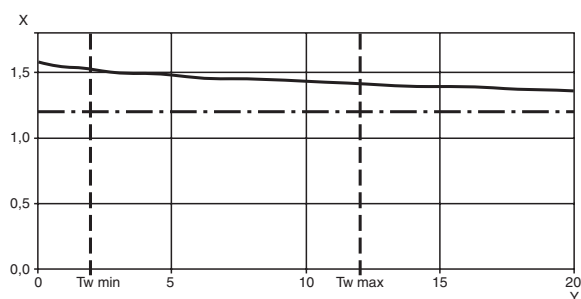
(Target orthogonal = 0°)  
(target orthogonal = 0°)  
(cible orthogonale = 0°)  
(objetivo ortogonal = 0°)  
(target ortogonale = 0°)

WTS10

X: Signalamplitude [V]  
Signal amplitude [V]  
Amplitude du signal [V]  
Amplitud de señal [V]  
Ampezza del segnale [V]

Y: Tastweite [mm]  
Detection range [mm]  
Largeur de marquage [mm]  
Rango de detección [mm]  
Profondità di scansionamento [mm]

— WTS10-12  
- - - Schaltschwelle  
Switching threshold  
Seuil de commutation  
Umbral de comutación  
Soglia di commutazione



### Signalamplitude Signal amplitude Amplitude du signal

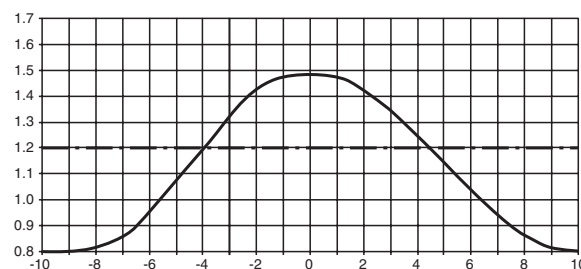
### Amplitud de señal Ampezza del segnale

bei Verschiebung des Targets  
for displacement of the target  
en cas de déplacement de la cible  
en caso de desplazamiento del objetivo  
con spostamento del target

X: Signalamplitude [V]  
Signal amplitude [V]  
Amplitude du signal [V]  
Amplitud de señal [V]  
Ampezza del segnale [V]

Y: Verschiebeweg X [mm]  
Displacement X [mm]  
Déplacement X [mm]  
Camino de desplazamiento X [mm]  
Percorso di spostamento X [mm]

— WTS10-12  
- - - Schaltschwelle  
Switching threshold  
Seuil de commutation  
Umbral de comutación  
Soglia di commutazione



### Signalamplitude Signal amplitude Amplitude du signal

### Amplitud de señal Ampezza del segnale

bei Verkippung des Targets  
for tilting of the target  
en cas d'inclinaison de la cible  
en caso de inclinación del objetivo  
con ribaltamento del target

WTS10

X: Signalamplitude [V]  
Signal amplitude [V]  
Amplitude du signal [V]  
Amplitud de señal [V]  
Ampezza del segnale [V]

Y: Kippwinkel [Grad]  
Tilt angle [degrees]  
Angle d'inclinaison [degré]  
Ángulo de inclinación [grados]  
Ángulo de ribaltamento [gradi]

— WTS10-12  
- - - Schaltschwelle  
Switching threshold  
Seuil de commutation  
Umbral de comutación  
Soglia di commutazione

