

### Contrast Scanner Operating Instructions

#### Safety Specifications

- Read the operating instructions before starting operation.
- Connection, assembly, and settings only by competent technicians.
- Protect the device against moisture and soiling when operating.
- No safety component in accordance with EU machine guidelines.

#### Proper Use

The KT5-2 contrast scanner is an opto-electronic sensor and is used for optical, non-contact detection of contrast marks.

#### Starting Operation

**1** Equipment plug horizontally (H) and vertically (V) adjustable. Connect and secure cable receptacle tension-free. The following apply for connection in **B**: brn = brown, blu = blue, blk = black, gra = gray, wht = white. Outputs: Q<sub>v</sub> or Q<sub>N</sub>. Connect the scanner according to the **B** connection chart.

**2** Release delay see: Timing element (corresponding to type label, see below). Select light emission side; replace the lens with a dummy screwed connection if necessary.

**3** Select the insertion position so that the light spot enters the marking vertically. Pay attention to the key; see below: **A** = vertical, **B** = horizontal.

**4** Mount the sensor with mounting holes at the place (e. g., deflection roller) where the test object has the least horizontal and vertical movement. Pay attention to the scanning range when doing this (see technical data and chart: x = scanning range; y = relative sensitivity).

Align the horizontal and vertical movements of the test object using correspondingly long markings.

Make sure that sensor movement does not influence the scanning distance.

**5** In the case of objects with reflective or shiny surface, tilt sensor by 10° to 15° relative to surface.

Connect cables.

#### **6** KT5W-2XXXX3 only:

ET: External teach input for programming the switching threshold using an external signal.

Saving the settings:

Set light and dark switch or via control cable: D: dark mark on light background, L: light mark on dark background.

High signal at ET. Move the format with the mark into the scanning distance of the light spot of the KT. Input ET switched with LOW signal. The switch threshold is permanently stored. The sensor selects the light source (red, blue or green) automatically. Material speed during teach-in procedure: min. 25 mm / s - max. 300 mm / s.

Lock the teach-in button against unintentional activation with "RUN". Teach-in can be triggered if the switch setting is not defined.

#### **7** KT5G-2XXXX4 only:

The switching threshold of the contrast scanner tracks the existing contrast dynamically. A teach-in process is not required.

Set light and dark switch and the contrast (F: fine; C: coarse) resolved by means of a switch on the operating panel or via control line: dark: dark mark on light background; light: light mark on dark background.

At switch position LINE, the operating panel is blocked. Only settings which are made via the control line F / C and L / D are accepted. The example shows the method of function for setting "coarse" in the dark mode.

Key					
KT5W-	2P	1	1	1	3
Light source	Output	Light spot	Scanning distance / Light spot	Timing element	Teach-in
G = green light W = Red-green-blue	P = PNP N = NPN	1 = horizontal 2 = vertical	1 = 10 mm / 1.2 x 4.2 mm 2 = 20 mm / 1.5 x 5 mm 3 = 40 mm / 1.1 x 4.2 mm	1 = without 2 = 20 ms Time delay	3 = dynamic teach-in 4 = automatic function

#### Maintenance

SICK light barriers are maintenance-free.

We recommend doing the following regularly:

- clean the external lens surfaces
- check the screw connections and plug-in connections.

No modifications may be made to devices.

### Kontrasttaster Betriebsanleitung

#### Sicherheitshinweise

- Vor der Inbetriebnahme die Betriebsanleitung lesen.
- Anschluss, Montage und Einstellung nur durch Fachpersonal.
- Gerät bei Inbetriebnahme vor Feuchte und Verunreinigung schützen.
- Kein Sicherheitsbauteil gemäß EU-Maschinenrichtlinie.

#### Bestimmungsgemäße Verwendung

Der Kontrasttaster KT5-2 ist ein optoelektronischer Sensor und wird zum optischen, berührungslosen Erfassen von Kontrastmarken eingesetzt.

#### Inbetriebnahme

**1** Gerätestecker nach horizontal (H) und vertikal (V) schwenkbar. Leitungsdose spannungsfrei aufstecken und festschrauben. Für Anschluss in **B** gilt: brn = braun, blu = blau, blk = schwarz, gra = grau, wht = weiß. Ausgänge: Q<sub>v</sub> oder Q<sub>N</sub>. Taster laut Anschlusschema **B** anschließen.

**2** Abfallverzögerung: Zeitglied (entspr. Typenschlüssel, s. u.). Lichtaustrittsseite wählen, ggf. Objektiv gegen Blindverschraubung austauschen.

**3** Einbaulage so wählen, dass Lichtfleck längs in die Markierung eintritt. Dabei Typenschlüssel beachten, s. u.; **A** = längs, **B** = quer.

**4** Sensor mit Befestigungsbohrungen an Stelle (z. B. Umlenkrolle) montieren, an der das Prüfobjekt die geringsten Seiten- und Höhenbewegungen ausführt. Dabei Tastweite beachten (s. technische Daten und Diagramm, x=Tastweite, y=relative Empfindlichkeit).

Seiten- und Höhenbewegungen des Prüfobjektes durch entsprechend lange Markierungen ausgleichen.

Bewegungen des Sensors mit Tastweiteneinfluss ausschließen.

**5** Bei spiegelnden oder glänzenden Objektoberflächen Sensor um 10° bis 15° zur Materialoberfläche neigen.

Leitungen anschließen.

#### **6** Nur KT5W-2XXXX3:

ET: Eingang Extern Teach, zur Programmierung der Schaltschwelle über externes Signal.

Einstellung Speicherung:

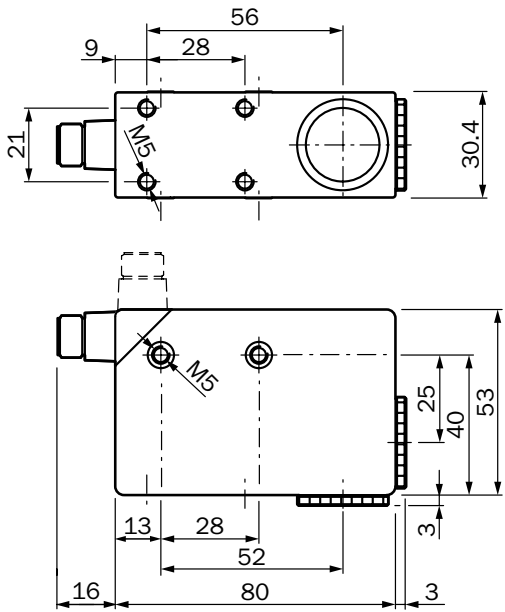


## KT 5W-2P / NXXX3 KT 5G-2P / NXXX4

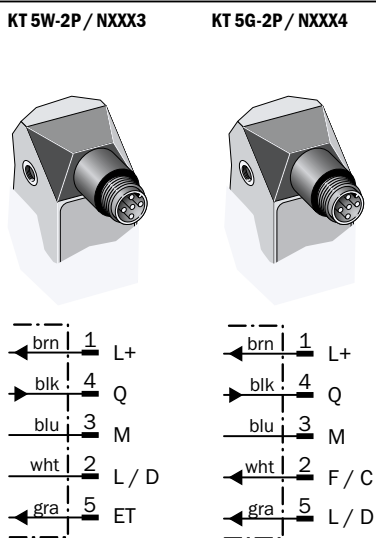
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#### A



#### B



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#### KT5

Supply voltage U <sub>s</sub>	Versorgungsspannung U <sub>s</sub>	Tension d'alimentation U <sub>s</sub>	Tensão de força U <sub>s</sub>
Switching output	Schaltausgang	Sortie logique	Saída de circuito
Signal sequence	Signalfolge	Frequence	Sequência do sinais
Response time	Ansprechzeit	Temps de réponse	Tempo de reação
Enclosure rating	Schutzart	Type de protection	Tipo de proteção
Ambient operating temperature	Betriebsumgebungstemperatur	Température ambiante	Temperatura ambiente de operação

- <sup>1)</sup> Limit values  
Residual ripple max. 5 V<sub>pp</sub>  
U<sub>s</sub> connections reverse polarity protected

- <sup>2)</sup> Scanning ratio 1:1

- <sup>1)</sup> Grenzwerte  
Restwelligkeit max. 5 V<sub>pp</sub>  
U<sub>s</sub>-Anschlüsse verpölsicher

- <sup>2)</sup> Tastverhältnis 1:1

- <sup>1)</sup> Valeurs limites  
Ondulation résiduelle max. 5 V<sub>pp</sub>  
Raccordements U<sub>s</sub> protégés contre les inversions de polarité

- <sup>2)</sup> Rapport de détection 1:1

- <sup>1)</sup> Valores limite  
ondulação residual máx. 5 V<sub>pp</sub>  
Conexões U<sub>s</sub> protegidas contra inversão de polos

- <sup>2)</sup> Relação de exploração 1:1

#### KT5

Tensione di alimentazione U <sub>s</sub>	Tensión de alimentación U <sub>s</sub>	电源电压 U <sub>s</sub>	供給電圧 U <sub>s</sub>
Uscita di commutazione	Salida de conexión	输出电流 I <sub>out</sub>	最大出力電流 I <sub>out</sub>
Sequenza segnali	Secuencia de señales	最小信号序列	最小信号シーケンス
Tempo di risposta	Tiempo de reacción	触发时间	応答時間
Tipo di protezione	Tipo de protección	保护种类	保護等級
Temperatura ambiente circostante	Temperatura ambiente de servicio	工作环境-温度	使用周囲温度

- <sup>1)</sup> Valori limite  
ondulazione residua max. 5 V<sub>pp</sub>  
U<sub>s</sub>-collegamenti con protezione contro inversione di poli

- <sup>2)</sup> Rapporto di rizezione 1:1

- <sup>1)</sup> Valores limite  
ondulación residual máx. 5 V<sub>pp</sub>  
Conexiones U<sub>s</sub> a prueba de inversión de polaridad

- <sup>2)</sup> Relación de exploración 1:1

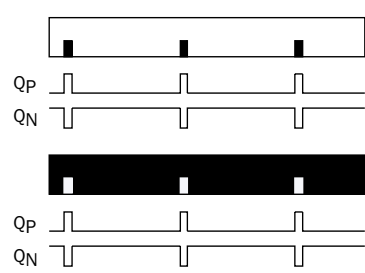
- <sup>1)</sup> 极限值  
纹波 max. 5 V<sub>pp</sub>  
U<sub>s</sub>接头防反接

- <sup>2)</sup> 感应比 1:1

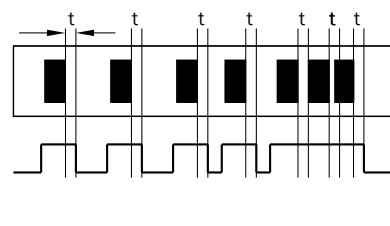
- <sup>1)</sup> 界限値  
残留リップル 最大 5 V<sub>pp</sub>  
U<sub>s</sub>接続逆接保護

- <sup>2)</sup> 検出比 1:1

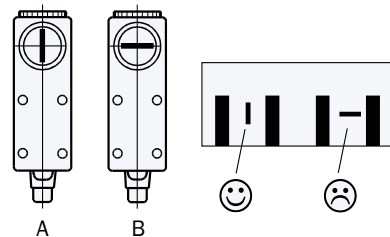
#### 1



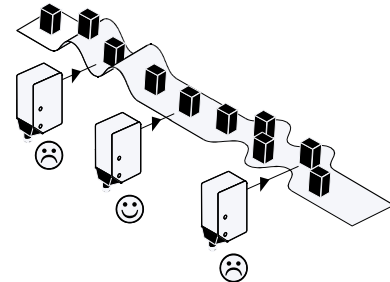
#### 2



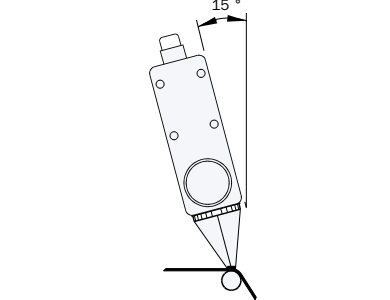
#### 3



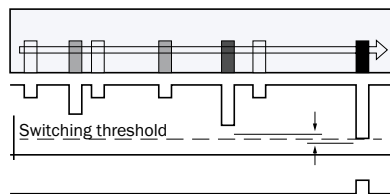
#### 4



#### 5



#### 6



#### 7

