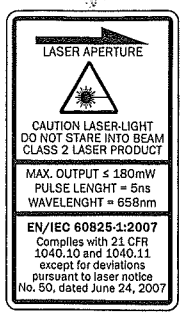
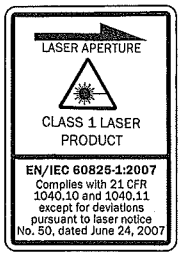
ENGLISH

Distance Sensor
with display
Operating Instructions

DT50-P1113, DT50-P1114,
DT50-N1113, DT50-N1114

DT50-P1123, DT50-P1124,
DT50-N1123, DT50-N1124





Safety Specifications

- Read the operating instructions before starting operation.
- Connection, assembly, and settings only by competent technicians.
- Protect the equipment against moisture and soiling when operating.
- No safety component in accordance with EU machine guidelines.
- CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Proper Use

The DT50 distance sensor is an optoelectronic sensor and is used for optical determination of object distances without contact.

Starting Operation

1 Connect and secure cable receptacle tension-free.

The following apply for connection in **B**: brn = brown, blk = black, blu = blue, wht = white, gra = grey.

Q = Switching output, Q_A = Analog output, MF = Multi-functional input.

Connect cables.

Fix sensor to suitable holders (e.g. SICK mounting bracket).

Connect sensor to operating voltage (see type label).

Adjustment:

Align sensor that object is in measuring area and light spot at the correct position.

Display:

Current measurement distance or menu is displayed. (If below or above measuring range: MIN/MAX, if no measurement is possible: NoDist.)

Menu structure/Description of functionality

1a `4mA` Automatic teaching of current distance to object as distance to be output with 4 mA or 0 V. **2**

`20mA` Automatic teaching of current distance to object as distance to be output with 20 mA or 10 V. **2**

`Q-Set` Automatic teaching of current distance to object as switching threshold. **3**

1b `4mA` Manual adjustment of distance which is output with 4 mA or 0 V. (200 ... 10,000 mm) **2**

`20mA` Manual adjustment of distance which is output with 20 mA or 10 V. (200 ... 10,000 mm) **2**

`Q-Set` Manual adjustment of switching threshold. (200 ... 10,000 mm) **3**

`QLogic` Setting of switch output logic. (Q, $\overline{Q}$)

`Q-Hyst` Setting hysteresis. (10 ... 1,000 mm)

`Averag` Setting of moving averaging. Fast/Slow (1x/4x)

`MF` Setting functionality of multi-function input:
- LsrOff: Switching off laser, when signal at MF is active
- Teach: Teach 4 mA: 80 ms < MF active < 120 ms;
  Teach 20 mA: 180 ms < MF active < 220 ms;
  Teach Q: 280 ms < MF active < 320 ms;
  Teach $\overline{Q}$: 380 ms < MF active < 420 ms
- MF-Off: MF-Input is without functionality

`Disply` Switch off display. (switch on again Set > 5 s)

`Reset` Reset to default settings.

`Lock` Activation of key lock.
(De-activation of key lock Set > 5 s)

Maintenance

The SICK sensor does not require any maintenance. We recommend that you clean the external lens surfaces and check the screw connections and plug-in connections at regular intervals.

DEUTSCH

Distanzsensor
mit Display
Betriebsanleitung

SICK

8012874.V215 1111 GO

SENSICK DT50

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Phone +420 2 57 91 18 50
China
Phone +852-2763 6966
Danmark
Phone +45 45 82 64 00
Deutschland
Phone +49 211 5301-301
España
Phone +34 93 480 31 00
France
Phone +33 1 64 62 35 00
Great Britain
Phone +44 (0)1727 831121
India
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Israel
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Italia
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Japan
Phone +81 (0)3 3358 1341
Magyarország
Phone +36 1 371 2680
Nederlands
Phone +31 (0)30 229 25 44
Österreich
Phone +43 (0)22 36 62 28 8-0
Norge
Phone +47 67 81 50 00
Polska
Phone +48 22 837 40 50
România
Phone +40 356 171 120
Russia
Phone +7 495 775 05 30
Schweiz
Phone +41 41 619 29 39
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Please find detailed addresses and additional representatives and agencies in all major industrial nations at www.sick.com

BZ int37

Subject to change without notice
Irrtümer und Änderungen vorbehalten
Sujet à modification sans préavis
Alterações poderão ser feitas sem prévio aviso
Med forbehold for ændringer og fejl
Contenuti soggetti a modifiche senza preavviso
Wijzigingen en correcties voorbehouden
Sujeto a cambio sin previo aviso
如有更改, 不另行通知

Inbetriebnahme

1 Leitungsdose spannungsfrei aufstecken und festschrauben.

Für Anschluss in **B** gilt: brn = braun, blk = schwarz, blu = blau, wht = weiß, gra = grau.

Q = Schaltausgang, Q_A = Analogausgang, MF = Multifunktionseingang.

Leitungen anschließen.

Sensor an geeignetem Halter anschrauben (z. B. SICK-Haltewinkel).

Sensor an Betriebsspannung legen (s. Typenaufdruck).

Justage:

Sensor so ausrichten, dass Objekt im Messbereich liegt. Lichtfleck auf Zielobjekt ausrichten.

Display:

Aktueller Messwert oder Menü wird dargestellt.
(Im Falle von Messwertunter- oder -überschreitung: MIN/MAX, wenn keine Messung möglich: NoDist.)

Menüstruktur/Funktionsbeschreibung

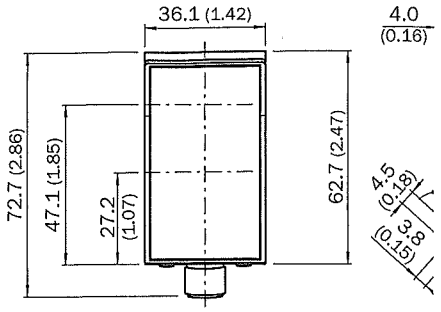
1a `4mA` Automatisches Einlernen des aktuellen Abstandes zum Objekt als Messwert, der mit 4 mA oder 0 V ausgegeben wird. **2**

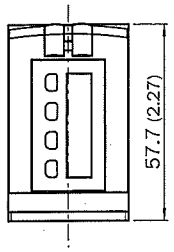
`20mA` Automatisches Einlernen des aktuellen Abstandes zum Objekt als Messwert, der mit 20 mA oder 10 V ausgegeben wird. **2**

`Q-Set` Automatisches Einlernen des aktuellen Abstandes zum Objekt als Schaltschwelle. **3**

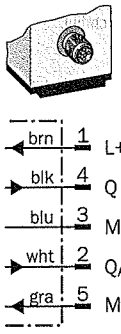
1b `4mA` Manuelle Feineinstellung des Abstandes, der mit

A

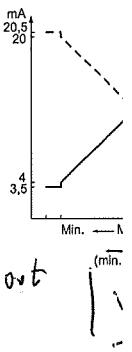




B



2

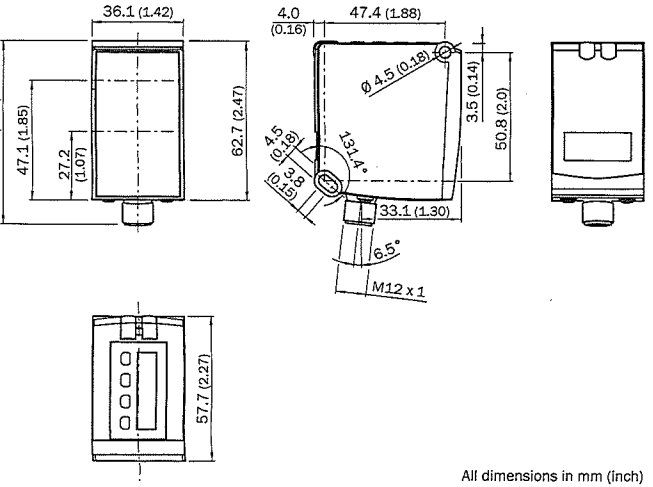


DT50-	
Measurement area wht 90 % gra 18 % blk 6 %	Messbereich wht 90 % gra 18 % blk 6 %
Light spot diameter/distance	Lichtfleckdurchmess
Insensitivity to extraneous light	Fremdlichtsicherheit
Supply voltage V_S	Versorgungsspannu
Switching output [2]	Schaltausgang [2]
Analog output	Analogausgang
Power consumption [4]	Leistungsaufnahme
Output rate	Ausgaberate
Averaging/ Reproducibility [5]/ Response time [6]	Mittelungstiefe/ Reproduzierbarkeit Ansprechzeit [6]
Standby delay	Bereitschaftsverzug
Enclosure rating	Schutzart
Accuracy [7]	Genauigkeit [7]
Resolution	Auflösung
Resolution Q_A	Auflösung Q_A
Protection class	Schutzklasse
Ambient operating temperature [8]	Betriebsumgebungs

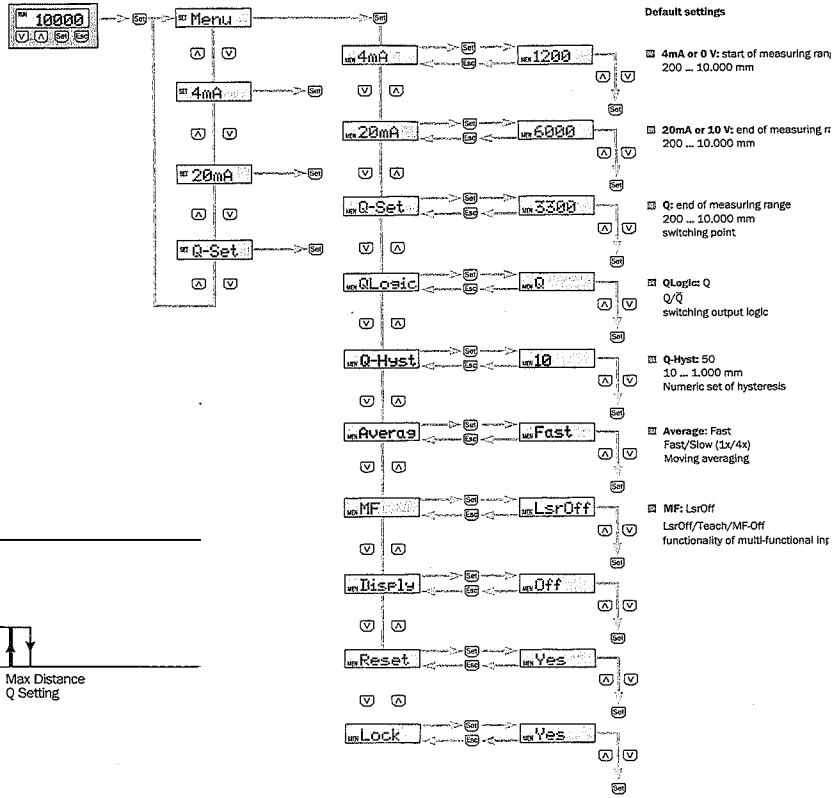
1) Limit values, reverse-polarity protected Operation in short-circuit protected network max. 8 A Residual ripple max. 5 V_{PP}
2) PNP Hi = V_S - (< 2,5 V), Low = 0 V / NPN Hi = V_S, Low ≤ 2,5 V
3) R_{max} = (V_S - 2 V) / 20.5 mA
4) Without load
5) Reproducibility 1 σ on 90 % white
6) Lateral entry of object into measurement range
7) At 90 % remission
8) At 24 V, warm-up time 10 min (recommended), minimum starting temperature -25 °C

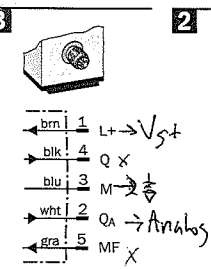
1) Grenzwerte, verpol schlussgeschützte Restwelligkeit max
2) PNP Hi = U_V - (< 2,
NPN Hi = U_V, Low ≤
3) R_{max} = (U_V - 2 V) / 2
4) Ohne Last
5) Reproduzierbarkeit
6) Seitliches Einführe Messbereich
7) Bei 90 % Remissio
8) Bei 24 V, Warmlau minimale Anlaufte

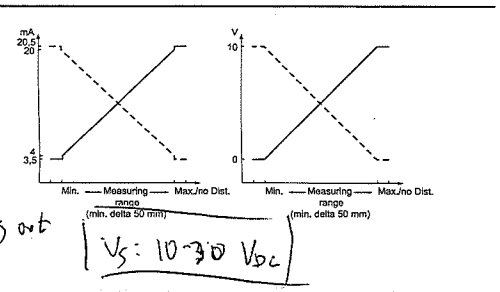
DT50-	
Area di misurazione wht 90 % gra 18 % blk 6 %	Meetbereik wht 90 % gra 18 % blk 6 %
Diametro punto luminoso/distanza	Lichtvlekdiameter/E
Protezione da luci parassite	Veiligheid extern lich
Tensione di alimentazione U_V	Voedingsspanning U
Uscita di commutazione [2]	Schakeluitgang [2]



All dimensions in mm (inch)







Vs: 10-30 VDC

T50-					P1113	N1113	P1114	N1114	P1123	N1123	P1124	N1124
leasurement area ht 90 % a 18 % k 6 %	Messbereich wht 90 % gra 18 % blk 6 %	Plage de mesure wht 90 % gra 18 % blk 6 %	Campo de medição wht 90 % gra 18 % blk 6 %	Måleområde wht 90 % gra 18 % blk 6 %	200 ... 10.000 mm 200 ... 6.500 mm 200 ... 4.000 mm				200 ... 10.000 mm 200 ... 5.000 mm 200 ... 2.500 mm			
ght spot diameter/distance	Lichtfleckdurchmesser/Entfernung	Diamètre de la tache lumineuse/Distance	Diâmetro do ponto de luz/distância	Lyspletdiameter/afstand	typ. Ø < 15 mm/10 m							
sensitivity to extraneous light	Fremdlichtsicherheit	Fiabilité envers les lumières parasites	Segurança contra luz externa	Sikkerhed mod fremmed lys	40.000 lux							
upply voltage V_S	Versorgungsspannung U_V	Tension d'alimentation U_V	Tensão de força U_V	Forsyningsspænding U_V	10 ... 30 V DC [1]							
witching output [2]	Schaltausgang [2]	Sortie logique [2]	Saída de circuito [2]	Koblingsudgang [2]	PNP, Q/Q̄	NPN, Q/Q̄	PNP, Q/Q̄	NPN, Q/Q̄	PNP, Q/Q̄	NPN, Q/Q̄	PNP, Q/Q̄	NPN, Q
nalog output	Analogausgang	Sortie analogique	Saída analógica	Analogudgang	4 ... 20 mA [3]		0 ... 10 V		4 ... 20 mA [3]		0 ... 10 V	
ower consumption [4]	Leistungsaufnahme [4]	Consommation de courant [4]	Potência ligada [4]	Strømforbrug [4]	< 2,1 W							
utput rate	Ausgaberate	Débit de sortie	Taxa de saída	Udlæsningshastighed	4 ms							
veraging/ eproducibility [5]/ esponse time [6]	Mittelungstiefe/ Reproduzierbarkeit [5]/ Ansprechzeit [6]	Profondeur du calcul de la moyenne/ Reproductibilité [5]/ Temps de réponse [6]	Profundidade da média/ Reprodutibilidade [5]/ Tempo de reação [6]	Meddelelsesdybde/ Reproducerbarhed [5]/ Responstid [6]	Fast (1x)/5 mm/20 ms Slow (4x)/2,5 mm/30 ms							
andby delay	Bereitschaftsverzug	Retard à la disponibilité	Atraso de disponibilidade	Beredskabsforsinkelse	250 ms							
nclosure rating	Schutzart	Type de protection	Tipo de proteção	Tæthedsgrad	IP 65							
ccuracy [7]	Genauigkeit [7]	Précision [7]	Precisão [7]	Nøjagtighed [7]	± 10 mm							
esolution	Auflösung	Résolution	Resolução	Opløsning	1 mm							
esolution Q_A	Auflösung Q_A	Résolution Q_A	Resolução Q_A	Opløsning Q_A	16 Bit							
otection class	Schutzklasse	Classe de protection	Classe de proteção	Beskyttelsesklasse	II							
mbient operating temperature [8]	Betriebsumgebungstemperatur [8]	Température ambiante [8]	Temperatura ambiente de operação [8]	Driftsomgivelsestemperatur [8]	–30 °C ... +65 °C							

Limit values, reverse-polarity protected Operation in short-circuit protected network max. 8 A
Residual ripple max. 5 V_{PP}
PNP Hi = V_S - (< 2,5 V), Low = 0 V /
NPN Hi = V_S, Low ≤ 2,5 V
R_{min} = (U_V - 2 V) / 20,5 mA
Without load
Reproducibility 1 σ on 90 % white
Lateral entry of object into measurement range
At 90 % remission
At 24 V, warm-up time 10 min (recommended), minimum starting temperature –25 °C

[1] Grenzwerte, verpolsicher Betrieb im kurzschlussgeschützten Netz max. 8 A
Restwelligkeit max. 5 V_{SS}
[2] PNP Hi = U_V - (< 2,5 V), Low = 0 V /
NPN Hi = U_V, Low ≤ 2,5 V
[3] R_{min} = (U_V -2 V) / 20,5 mA
[4] Ohne Last
[5] Reproduzierbarkeit 1 σ auf 90 % weiß
[6] Seitliches Einführen des Objektes in den Messbereich
[7] Bei 90 % Remission
[8] Bei 24 V, Warmlaufzeit 10 min (empfohlen), minimale Anlauftemperatur –25 °C

[1] Valeurs limites Service dans un réseau protégé contre les courts-circuits 8 A au maximum
Ondulation résiduelle maxi 5 V_{SS}
[2] PNP Hi = U_V - (< 2,5 V), Low = 0 V /
NPN Hi = U_V, Low ≤ 2,5 V
[3] R_{min} = (U_V -2 V) / 20,5 mA
[4] Sans charge
[5] Reproductibilité 1 σ sur 90 % de blanc
[6] Introduction latérale de l'objet dans la plage de mesure
[7] Pour une rémission de 90 %
[8] Sous 24 V, Temps d'échauffement 10 min (recommandé), Température minimale au démarrage –25 °C

[1] Valores limite Operação em rede protegida contra curto-circuitos máx. 8 A Ondulação residual máx. 5 V_{SS}
[2] PNP Hi = U_V - (< 2,5 V), Low = 0 V /
NPN Hi = U_V, Low ≤ 2,5 V
[3] R_{min} = (U_V -2 V) / 20,5 mA
[4] Sem carga
[5] Reprodutibilidade 1 σ em 90 % de branco
[6] Introdução lateral do objecto na zona de medição
[7] Com 90 % de luminância
[8] Com 24 V, tempo de aquecimento 10 min. (recomendado) Temperatura mínima de partida = –25 °C

[1] Grænseværdier
Drift i kortslutningsbeskyttet net max. 8 A
resterende bølgethed max. 5 V_{SS}
[2] PNP Hi = U_V - (< 2,5 V), Low = 0 V /
NPN Hi = U_V, Low ≤ 2,5 V
[3] R_{min} = (U_V -2 V) / 20,5 mA
[4] Uden belastning
[5] Reproducerbarhed 1 σ til 90 % hvid
[6] Objektet føres fra siden ind i måleområdet
[7] Ved 90 % remission
[8] Ved 24 V, Opvarmningstid 10 min. (anbefalet), minimal opstarttemperatur –25 °C

T50-				P1113	N1113	P1114	N1114	P1123	N1123	P1124	N1124
ea di misurazione ht 90 % a 18 % k 6 %	Meetbereik wht 90 % gra 18 % blk 6 %	Gama de medición wht 90 % gra 18 % blk 6 %	測量范圍 wht 90 % gra 18 % blk 6 %	200 ... 10.000 mm 200 ... 6.500 mm 200 ... 4.000 mm				200 ... 10.000 mm 200 ... 5.000 mm 200 ... 2.500 mm			
iametro punto luminoso/distanza	Lichtviekdiameter/Bereik	Diámetro de mancha de luz/ distancia de manca de luz	光点直径 / 距离	typ. Ø < 15 mm/10 m							