

ENGLISH

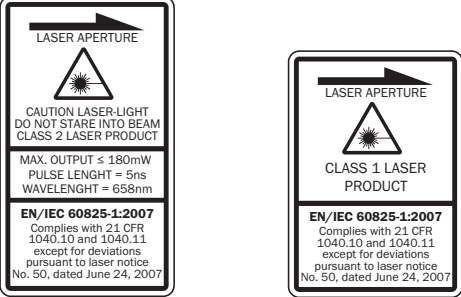
Distance Sensor

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, Q̄)

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: 180 ms < MF active < 120 ms;
Teach 20 mA: 180 ms < MF active < 220 ms;
Teach Q: 280 ms < MF active < 320 ms;
Teach Q: 380 ms < MF active < 420 ms
- MF-Off: MF-Input is without functionality

Display

Switch off display. (switch on again **↵** > 5 s)

Reset

Reset to default settings.

Lock

Activation of key lock.
(De-activation of key lock **↵** > 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

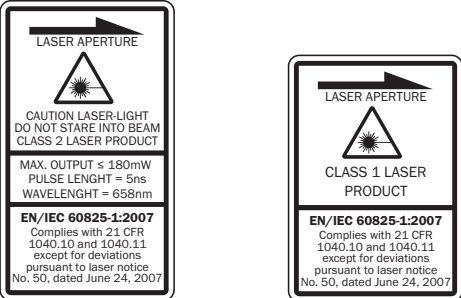
Distanzsensor

mit Display

Betriebsanleitung

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

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



Sicherheitshinweise

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

Bestimmungsgemäße Verwendung

Der DT50 ist ein optoelektronischer Sensor und wird zur optischen, berührungslosen Distanzbestimmung von Objekten eingesetzt.

SICK

8012874.V215 1111 GO

SENSICK

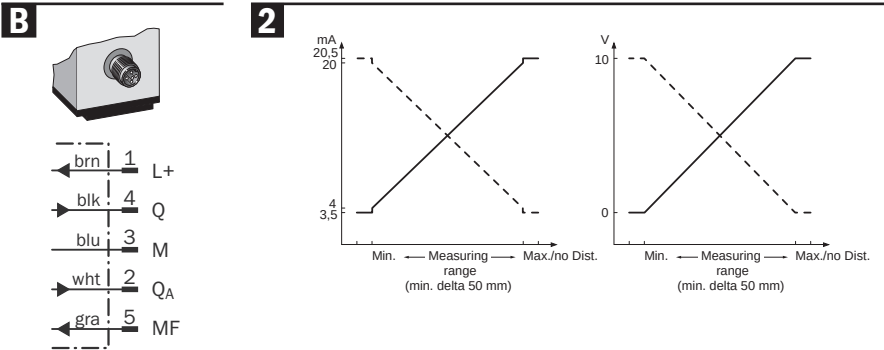
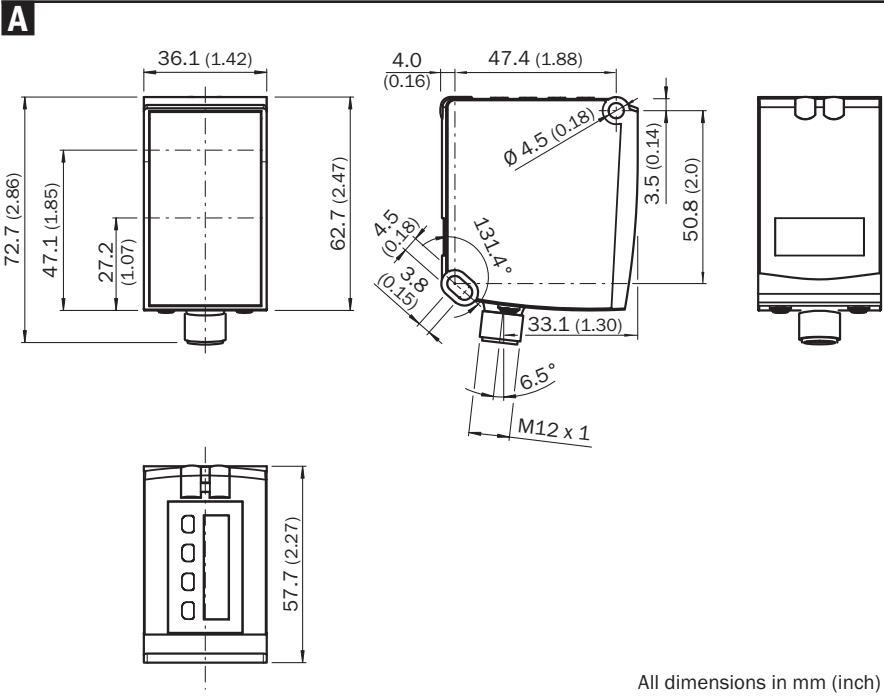
DT50

Australia
Phone +61 3 9497 4100
Belgium/Luxembourg
Phone +32 (0)2 466 55 66
Brasil
Phone +55 11 3215-4900
Canada
Phone +1(952) 941-6780
Ceská Republika
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
Phone +91-22-4033 8333
Israel
Phone +972-4-999-0590
Italia
Phone +39 02 27 43 41
Japan
Phone +81 (0)3 3358 1341
Magyarország
Phone +36 1 371 2680
Niederlande
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
Singapore
Phone +65 6744 3732
Slovenija
Phone +386 (0)1-47 69 990
South Africa
Phone +27 11 472 3733
South Korea
Phone +82-2-786 6321/4
Suomi
Phone +358-9-25 15 800
Sverige
Phone +46 10 110 10 00
Taiwan
Phone +886 2 2375-6288
Türkiye
Phone +90 216 528 50 00
United Arab Emirates
Phone +971 4 8865 878
USA/México
Phone +1(952) 941-6780

Please find detailed addresses and additional representatives and agencies in all major industrial nations at www.sick.com

BZ m37



DT50-					P1113	N1113	P1114	N1114	P1123	N1123	P1124	N1124
Measurement area	Messbereich	Plage de mesure	Campo de medição	Måleområde								
wht 90 %	wht 90 %	wht 90 %	wht 90 %	wht 90 %		200 ... 10,000 mm				200 ... 10,000 mm		
gra 18 %	gra 18 %	gra 18 %	gra 18 %	gra 18 %		200 ... 6,500 mm				200 ... 5,000 mm		
blk 6 %	blk 6 %	blk 6 %	blk 6 %	blk 6 %		200 ... 4,000 mm				200 ... 2,500 mm		
Light spot diameter/ distance	Lichtfleckdurchmesser/ Entfernung	Diamètre de la tache lumineuse/Distance	Diâmetro do ponto de luz/distância	Lysplettdiameter/ afstand				typ. Ø < 15 mm/10 m				
Insensitivity to extraneous light	Fremdlichtsicherheit	Fiabilité envers les lumières parasites	Segurança contra luz externa	Sikkerhed mod fremmed lys				40,000 lux				
Supply voltage V _S	Versorgungsspannung U _V	Tension d'alimentation U _V	Tensão de força U _V	Forsyningsspænding U _V				10 ... 30 V DC ¹⁾				
Switching 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/Q̄
					4 ... 20 mA ³⁾		0 ... 10 V		4 ... 20 mA ³⁾		0 ... 10 V	
Analog output	Analogausgang	Sortie analogique	Saída analógica	Analogudgang				< 2.1 W				
Power consumption ⁴⁾	Leistungsaufnahme ⁴⁾	Consommation de courant ⁴⁾	Potência ligada ⁴⁾	Strømforbrug ⁴⁾				4 ms				
Output rate	Ausgaberate	Débit de sortie	Taxa de saída	Udlæsningshastighed				Fast (1x)/5 mm/20 ms				
Averaging/ Reproducibility ^{5)/} / Response 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⁾				Slow (4x)/ 2,5 mm/30 ms				
Standby delay	Bereitchaftsverzug	Retard à la disponibilité	Atraso de disponibilidade	Beredskabsforsinkelse				250 ms				
Enclosure rating	Schutzart	Type de protection	Tipo de proteção	Tæthedegrad				IP 65				
Accuracy ⁷⁾	Genauigkeit ⁷⁾	Précision ⁷⁾	Precisão ⁷⁾	Nøjagtighed ⁷⁾				± 10 mm				
Resolution	Auflösung	Résolution	Resolução	Opløsning				1 mm				
Resolution Q _A	Auflösung Q _A	Résolution Q _A	Resolução Q _A	Opløsning Q _A				16 Bit				
Protection class	Schutzklasse	Classe de protection	Classe de proteção	Beskyttelsesklasse				II				
Ambient operating temperature ⁸⁾	Betriebsumgebungstemperatur ⁸⁾	Température ambiante ⁸⁾	Temperatura ambiente de operação ⁸⁾	Driftsomgivelsestemperatur ⁸⁾				-30 °C ... +65 °C				
¹⁾ Limit values, reverse-polarity protected Operation in short-circuit protected network max. 8 A Residual ripple max. 5 V _{RS}	¹⁾ Grenzwerte, verpolsicher Betrieb im kurzschlussschutzten Netz max. 8 A Restwelligkeit max. 5 V _{RS}	¹⁾ Valeurs limites Service dans un réseau protégé contre les courts-circuits max. 8 A Ondulation résiduelle max. 5 V _{RS}	¹⁾ Valores limite Operação em rede protegida contra curto-circuitos máx. 8 A Ondulação residual máx. 5 V _{RS}	¹⁾ Grænseværdier Drift i kortslutningsbeskyttet net max. 8 A resterende bølgehæd max. 5 V _{RS}								
²⁾ PNP HI = U _V - (< 2,5 V), Low = 0 V / NPN HI = U _V , Low ≤ 2,5 V R _{max} = (U _V - 2 V) / 20,5 mA	²⁾ PNP HI = U _V - (< 2,5 V), Low = 0 V / NPN HI = U _V , Low ≤ 2,5 V R _{max} = (U _V - 2 V) / 20,5 mA	²⁾ PNP HI = U _V - (< 2,5 V), Low = 0 V / NPN HI = U _V , Low ≤ 2,5 V R _{max} = (U _V - 2 V) / 20,5 mA	²⁾ PNP HI = U _V - (< 2,5 V), Low = 0 V / NPN HI = U _V , Low ≤ 2,5 V R _{max} = (U _V - 2 V) / 20,5 mA	²⁾ PNP HI = U _V - (< 2,5 V), Low = 0 V / NPN HI = U _V , Low ≤ 2,5 V R _{max} = (U _V - 2 V) / 20,5 mA								
³⁾ Without load	³⁾ Ohne Last	³⁾ Sans charge	³⁾ Sem carga	³⁾ Uden belastning								
⁴⁾ Reproducibility 1 o on 90 % white	⁴⁾ Reproduzierbarkeit 1 o auf 90 % weiß	⁴⁾ Reproductibilité 1 o sur 90 % de blanc	⁴⁾ Reprodutibilidade 1 o em 90 % de branco	⁴⁾ Objektet føres fra siden ind i måleområdet								
⁵⁾ Lateral entry of object into measurement range	⁵⁾ At 90 % remission	⁵⁾ Introduction latérale de l'objet dans la plage de mesure	⁵⁾ Introdução lateral do objecto na zona de medição	⁵⁾ Ved 90 % remission								
⁶⁾ At 24 V, warm-up time 10 min (recommended), minimum starting temperature -25 °C	⁶⁾ Bei 24 V, Warmlaufzeit 10 min (empfohlen), minimale Anlauftemperatur -25 °C	⁶⁾ Pour une rémission de 90 %	⁶⁾ Sous 24 V, Temps d'échauffement 10 min (recommandé), température minimale au démarrage -25 °C	⁶⁾ Ved 24 V, Opvarmningstid 10 min. (anbefalet), minimal opstartstemperatur -25 °C								
⁷⁾ Accuracy	⁷⁾ Genauigkeit	⁷⁾ Précision	⁷⁾ Precisão	⁷⁾ Nøjagtighed								
⁸⁾ Resolution	⁸⁾ Auflösung	⁸⁾ Résolution	⁸⁾ Resolução	⁸⁾ Opløsning								
⁹⁾ Protection class	⁹⁾ Schutzklasse	⁹⁾ Classe de protection	⁹⁾ Classe de proteção	⁹⁾ Beskyttelsesklasse								
¹⁰⁾ Ambient operating temperature	¹⁰⁾ Betriebsumgebungstemperatur	¹⁰⁾ Température ambiante	¹⁰⁾ Temperatura ambiente de operação	¹⁰⁾ Driftsomgivelsestemperatur								

DT50-					P1113	N1113	P1114	N1114	P1123	N1123	P1124	N1124
Area di misurazione	Meetbereik	Gama de medición	測量范围									
wht 90 %	wht 90 %	wht 90 %	wht 90 %			200 ... 10,000 mm				200 ... 10,000 mm		
gra 18 %	gra 18 %	gra 18 %	gra 18 %			200 ... 6,500 mm				200 ... 5,000 mm		
blk 6 %	blk 6 %	blk 6 %	blk 6 %			200 ... 4,000 mm				200 ... 2,500 mm		
Dímetro punto luminoso/distanza	Lichtvlekdiаметer/Bereik	Diâmetro de mancha de luz/ distancia de manca de luz	光点直径 / 距离					typ. Ø < 15 mm/10 m				
Protezione da luci parasite	Veiligheid extern licht	Seguridad respecto a la luz externa	外来光保护					40,000 lux				
Tensione di alimentazione U _V	Voedingsspanning U _V	Tensión de alimentación U _V	電源電圧 U _V					10 ... 30 V DC ¹⁾				
Uscita di commutazione ²⁾	Schakeluitgang ²⁾	Salida de conexión ²⁾	开关输出端 ²⁾					PNP, Q/Q̄	NPN, Q/Q̄	PNP, Q/Q̄	NPN, Q/Q̄	NPN, Q/Q̄
Uscita analogica	Analoge uitgang	Salida analógica	模拟输出端					4 ... 20 mA ³⁾	0 ... 10 V	4 ... 20 mA ³⁾		0 ... 10 V
Alimentazione di corrente ⁴⁾	Stroomopname ⁴⁾	Absorción de corriente ⁴⁾	电流承载 ⁴⁾					< 2.1 W				
Velocità di uscita	Uitvoerpercentage	Tasa de salida	输出比率					4 ms				
Profondità di calcolo della media/ Riproducibilità ^{5)/} / Tempo di risposta ⁶⁾	Gemiddelde diepte/ Reproduceerbaarheid ^{5)/} / Aansprektijd ⁶⁾	Profundidad de formación del valor medio / Reproducibilidad ^{5)/} / Tiempo de reacción ⁶⁾	平均值的底线 / 可复制能力 ^{5)/} / 触发时间 ⁶⁾					Fast (1x)/5 mm/20 ms				
Ritardo di attivazione	Gereedheidsvertraging	Retardo de disponibilidad	预备态延迟					Slow (4x)/ 2,5 mm/30 ms				
Tip di protezione	Beveiligingswijze	Tipo de protección	保护种类					250 ms				
Precisione ⁷⁾	Nauwkeurigheid ⁷⁾	Precisión ⁷⁾	精确度 ⁷⁾					IP 65				
Risoluzione	Resolutie	Resolución	分辨率					1 mm				
Risoluzione Q _A	Resolutie Q _A	Resolución Q _A	分辨率 Q _A					16 Bit				
Classe di protezione	Beveiligingsklasse	Protección clase	保护级别					II				
Temperatura ambiente circostante ⁸⁾	Bedrijfsomgevingstemperatuur ⁸⁾	Temperatura ambiente de servicio ⁸⁾	工作环境 - 温度 ⁸⁾					-30 °C ... +65 °C				

¹⁾ Valori limite, a prova di inversione di polarità. Funzionamento in rete con protezione dati cortocircuiti max. 8 A. Ondulazione residua max. 5 V_{RS}.

²⁾ PNP HI = U_V - (< 2,5 V), Low = 0 V / NPN HI = U_V, Low ≤ 2,5 V. R_{max} = (U_V - 2 V) / 20,5 mA.

³⁾ Senza carico.

⁴⁾ Riproducibilità 1 o su 90 % bianco.

⁵⁾ Inserimento laterale dell'oggetto nel campo di misurazione.

⁶⁾ Con remissione 90%.

⁷⁾ Con 24 V, tempo di riscaldamento 10 min (raccomandato), temperatura di avviamento minima -25 °C.

⁸⁾ Grenswaarden, beveiligd tegen verkeerd polen. Bedrijf in het kortsluitingbeveiligde net max. 8 A. Rimpel max. 5 V_{RS}.

⁹⁾ PNP HI = U_V - (< 2,5 V), Low = 0 V / NPN HI = U_V, Low ≤ 2,5 V. R_{max} = (U_V - 2 V) / 20,5 mA.

¹⁰⁾ Bij 24 V, warmlooptijd 10 min (aanbevolen), minimale aanlooptemperatuur -25 °C.

¹⁾ Valores limite, Seguro contra inversión de polaridad. Servicio en red a prueba de cortocircuito máx 8 A. residual máx. 5 V_{RS}.

²⁾ PNP HI = U_V - (< 2,5 V), Low = 0 V / NPN HI = U_V, Low ≤ 2,5 V. R_{max} = (U_V - 2 V) / 20,5 mA.

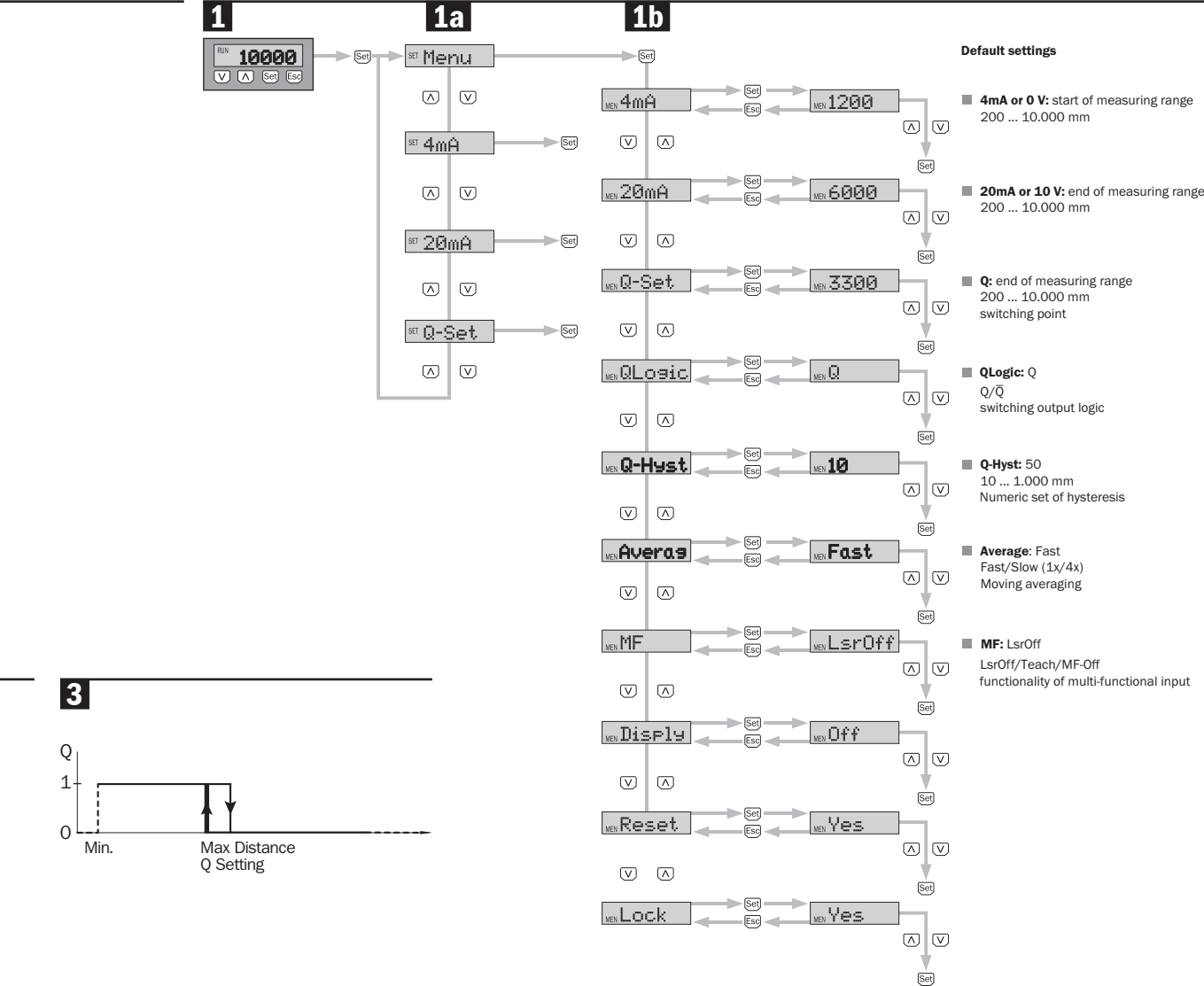
³⁾ Sin carga.

⁴⁾ Reproducibilidad 1 o en blanco 90 %.

⁵⁾ Introducción lateral del objeto en el campo de medición.

⁶⁾ Con remisión 90 %.

⁷⁾ A 24 V, tiempo de calentamiento 10 min. (recomendado), temperatura de arranque mínima -25 °C.



	P1113	N1113	P1114	N1114	P1123	N1123	P1124	N1124
Measurement area								
wht 90 %		200 ... 10,000 mm				200 ... 10,000 mm		
gra 18 %		200 ... 6,500 mm				200 ... 5,000 mm		
blk 6 %		200 ... 4,000 mm				200 ... 2,500 mm		
Light spot diameter/ distance				typ. Ø < 15 mm/10 m				
Insensitivity to extraneous light				40,000 lux				
Supply voltage V _S				10 ... 30 V DC ¹⁾				
Switching output ²⁾	PNP, Q/Q̄	NPN, Q/Q̄	PNP, Q/Q̄	NPN, Q/Q̄	PNP, Q/Q̄	NPN, Q/Q̄	PNP, Q/Q̄	NPN, Q/Q̄
	4 ... 20 mA ³⁾		0 ... 10 V		4 ... 20 mA ³⁾		0 ... 10 V	
Analog output				< 2.1 W				
Power consumption ⁴⁾				4 ms				
Output rate				Fast (1x)/5 mm/20 ms				
Averaging/ Reproducibility ^{5)/} / Response time ⁶⁾				Slow (4x)/ 2,5 mm/30 ms				
Standby delay				250 ms				
Enclosure rating				IP 65				
Accuracy ⁷⁾				± 10 mm				
Resolution				1 mm				
Resolution Q _A				16 Bit				
Protection class				II				
Ambient operating temperature ⁸⁾				-30 °C ... +65 °C				

¹⁾ Limit values, reverse-polarity protected Operation in short-circuit protected network max. 8 A Residual ripple max. 5 V_{RS}.

²⁾ PNP HI = U_V - (< 2,5 V), Low = 0 V / NPN HI = U_V, Low ≤ 2,5 V R_{max} = (U_V - 2 V) / 20,5 mA

³⁾ Without load

⁴⁾ Reproducibility 1 o on 90 % white

⁵⁾ Lateral entry of object into measurement range

⁶⁾ At 24 V, warm-up time 10 min (recommended), minimum starting temperature -25 °C

⁷⁾ Accuracy

⁸⁾ Resolution

⁹⁾ Protection class

¹⁰⁾ Ambient operating temperature

¹⁾ Grenswaarden, beveiligd tegen verkeerd polen. Bedrijf in het kortsluitingbeveiligde net max. 8 A Rimpel max. 5 V_{RS}.

²⁾ PNP HI = U_V - (< 2,5 V), Low = 0 V / NPN HI = U_V, Low ≤ 2,5 V. R_{max} = (U_V - 2 V) / 20,5 mA.

³⁾ Sin carga.

⁴⁾ Reproducibilidad 1 o en blanco 90 %.

⁵⁾ Introducción lateral del objeto en el campo de medición.

⁶⁾ Con remisión 90 %.

<

