

ENGLISH

Distance Sensor
with laser light
Operating Instructions

MAX. OUTPUT ≤ 2 mW FREQUENCY = 700 ... 1200 MHz PULSE DURATION = $\frac{1}{2 \times \text{Frequency}}$ WAVELENGTH = 650 nm	 LASER 2
IEC 60825-1:2014 EN 60825-1:2014+A11:2021 IEC 60825-1:2014 Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed.3., as described in Laser Notice No. 56, dated May 8, 2019	

Laser radiation - Do not look into the laser beam - Laser class 2 (EN/IEC 60825-1:2014)
 Identical laser class for issue EN/IEC 60825-1:2007

- 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.
 - > **CAUTION:** Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Proper Use

The DT500 distance sensor is an opto-electronic sensor and is used for optical, non-contact detection of objects, animals, and people.

Starting Operation

We recommend to use SICK accessories.

- 1** Connect and secure cable receptacle tension-free.
- The following apply for connection in **B**: brn=brown, blu=blue, blk=black, gra=grey, wht=white.
- C** MF multi-functional input.
- Connect cables.
- Fix sensor to suitable holders (BEF-DSDT alignment unit, www.sick.com/Dx500).
- Connect distance sensor to operating voltage (see type label).
- Adjustment of light reception:
- Position object. Highly reflective objects should be tilted slightly to avoid direct reflection. Position light spot on object. Red sender light spot visible on object.

Settings RS 422:

ASCII 5 characters <12345><CR><LF>
 19.2 kBaud, 8 data bits, 1 stop bit, no parity.

Error performance or no object in measurement range:

Error: measurement value output 00.00; analogue interface: 0/3.5 mA; serial interface: 00000 CR LF.

No object in measurement range: measurement value output 99.99; analogue interface: 20.5 mA; serial interface: 99999 CR LF.

Settings analogue output:

1a Selection of a current range.

1b Setting of the distance in cm to current value 0 (4) mA.

1c Setting of the distance in cm to current value 20 mA.

1d Currently measured distance.

1e Program abort:

The currently measured distance is always displayed after the program is aborted.

Reset to ex-works setting:

Press the two arrow keys at the same time and connect the distance sensor to the operating voltage.

4 ... 20 mA, 4 mA = 0,2 m, 20 mA = 0,8 m.

Maintenance

SICK sensors do 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 Laserlicht
Betriebsanleitung

MAX. LEISTUNG ≤ 2 mW FREQUENZ = 700 ... 1200 MHz IMPULSDAUER = $\frac{1}{2 \times \text{Frequenz}}$ WELLENLÄNGE = 650 nm	 LASER 2
IEC 60825-1:2014 EN 60825-1:2014+A11:2021 IEC 60825-1:2014 Entspricht 21 CFR 1040.10 und 1040.11 mit Ausnahme der Konformität mit IEC 60825-1 Ed.3., wie in der Laser Notice No. 56 vom 8. Mai 2019 beschrieben	

Laserstrahlung - Nicht in den Lichtstrahl blicken - Laserklasse 2 (EN/IEC 60825-1:2014)
 Identische Laserklasse für Ausgabe EN/IEC 60825-1:2007

SICK

8010693/1JK7/2024-06/8M_DR

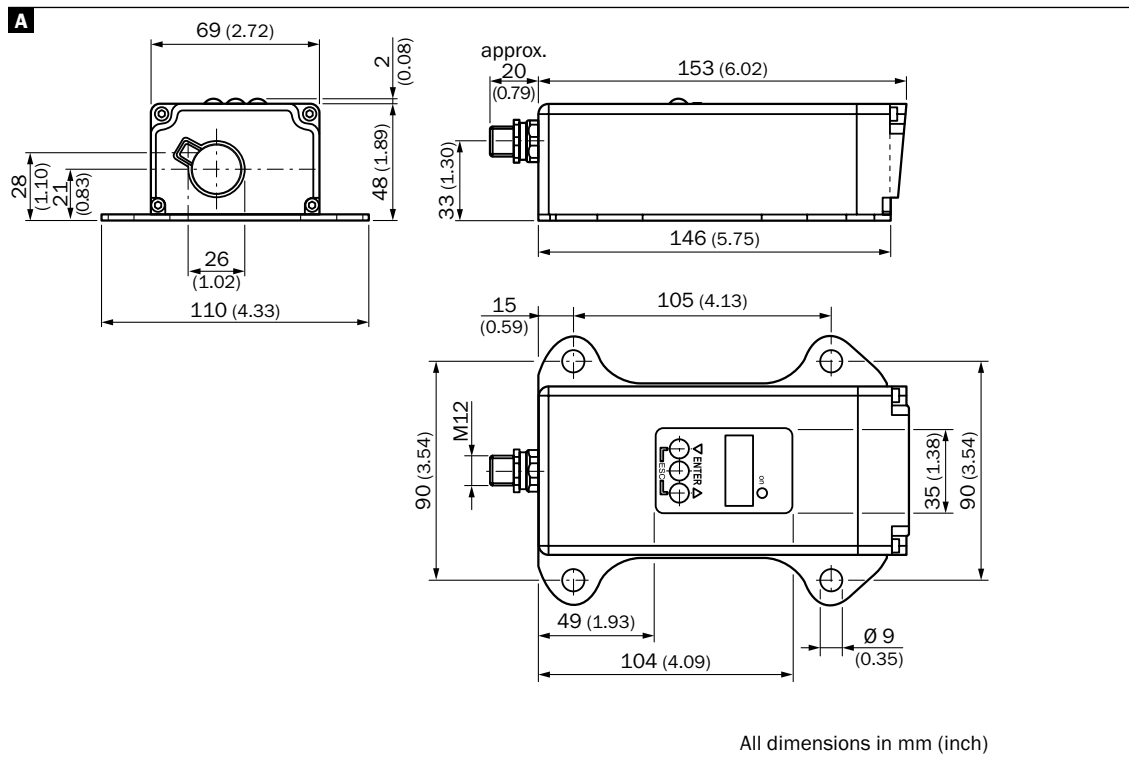
DT500

CE CDRH

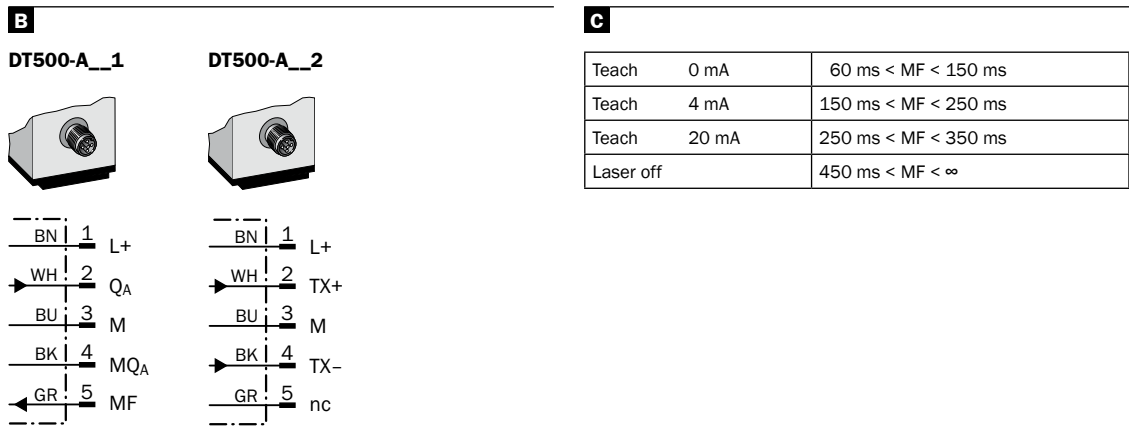
Australia Phone +61 (3) 9457 0600 1800 33 48 02 - tollfree	Netherlands Phone +31 (0) 30 229 25 44 New Zealand Phone +64 9 415 0459 0800 222 278 - tollfree	
Austria Phone +43 (0) 2236 62288-0	Norway Phone +47 67 81 50 00	
Belgium/Luxembourg Phone +32 (0) 2 466 55 66	Poland Phone +48 22 539 41 00	
Brazil Phone +55 11 3215-4900	Romania Phone +40 356-17 11 20	
Canada Phone +1 905.771.1444	Russia Phone +7 495 283 09 90	
Czech Republic Phone +420 234 719 500	Singapore Phone +65 6744 3732	
China Phone +86 20 2882 3600	Slovakia Phone +421 482 901 201	
Denmark Phone +45 45 82 64 00	Slovenia Phone +386 591 78849	
Finland Phone +358 9 25 15 800	South Africa Phone +27 10 060 0550	
France Phone +33 1 64 62 35 00	South Korea Phone +82 2 786 6321/4	
Germany Phone +49 (0) 2 11 53 010	Spain Phone +34 93 480 31 00	
Greece Phone +30 210 6825100	Sweden Phone +46 10 110 10 00	
Hong Kong Phone +852 2153 6300	Switzerland Phone +41 41 619 29 39	
Hungary Phone +36 1 371 2680	Taiwan Phone +886-2-2375-6288	
India Phone +91-22-6119 8900	Thailand Phone +66 2 645 0009	
Israel Phone +972 97110 11	Turkey Phone +90 (216) 528 50 00	
Italy Phone +39 02 27 43 41	United Arab Emirates Phone +971 (0) 4 88 65 878	
Japan Phone +81 3 5309 2112	United Kingdom Phone +44 (0)1278 31121	
Malaysia Phone +603-8080 7425	USA Phone +1 800.325.7425	
Mexico Phone +52 (472) 748 9451	Vietnam Phone +65 6744 3732	

Detailed addresses and further locations at www.sick.com

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



All dimensions in mm (inch)



DT500		A111, A112, A211, A212	A311, A411	A511, A611
Measurement range ¹⁾	Messbereich ¹⁾	Plage de mesure ¹⁾	Campo de medição ¹⁾	Måleområde ¹⁾
- blk 6 %	- blk 6 %	- blk 6 %	- blk 6 %	- blk 6 %
- wht 90 %	- wht 90 %	- wht 90 %	- wht 90 %	- wht 90 %
Light spot diameter/distance	Lichtfleckdurchmesser/Entfernung	Diamètre de la tache lumineuse/Distance	Diâmetro do ponto de luz/distância	Lysplettdiameter/afstand
Reproducibility	Reproduzierbarkeit	Reproductibilité	Reprodutibilidade	Reproducerbarhed
Preciseness	Genauigkeit	Précision	Exatidão	Præcision
Temperature drift	Temperaturdrift	Dérive due à la température	Temperatura de deriva	Temperaturdrift
Supply voltage V _s	Versorgungsspannung V _s	Tension d'alimentation V _s	Tensão de força V _s	Forsyningsspænding V _s
Response time	Ansprechzeit	Temps de réponse	Tempo de reação	Responstid
Analogue output ⁸⁾	Analogausgang ⁸⁾	Sortie analogique ⁸⁾	Saída analógica ⁸⁾	Analog udgang ⁸⁾
MF: Extern Teach/Laser off	MF: Extern Teach/Laser off	MF: Apprentissage externe/Laser off	MF: Extern Teach/Laser off	MF: Ekstern Teach/Laser off
RS 422	RS 422	RS 422	RS 422	RS 422
Enclosure rating	Schutzart	Type de protection	Tipo de proteção	Tæthedegrad
Ambient operating temperature	Betriebsumgebungstemperatur	Température de service	Temperatura do ambiente operacional	Omgivelsestemperatur
- Without heating ⁶⁾	- Ohne Heizung ⁶⁾	- Sans chauffage ⁶⁾	- Sem aquecimento ⁶⁾	- Uden opvarmning ⁶⁾
- With heating ⁷⁾	- Mit Heizung ⁷⁾	- Avec chauffage ⁷⁾	- Com aquecimento ⁷⁾	- Med opvarmning ⁷⁾

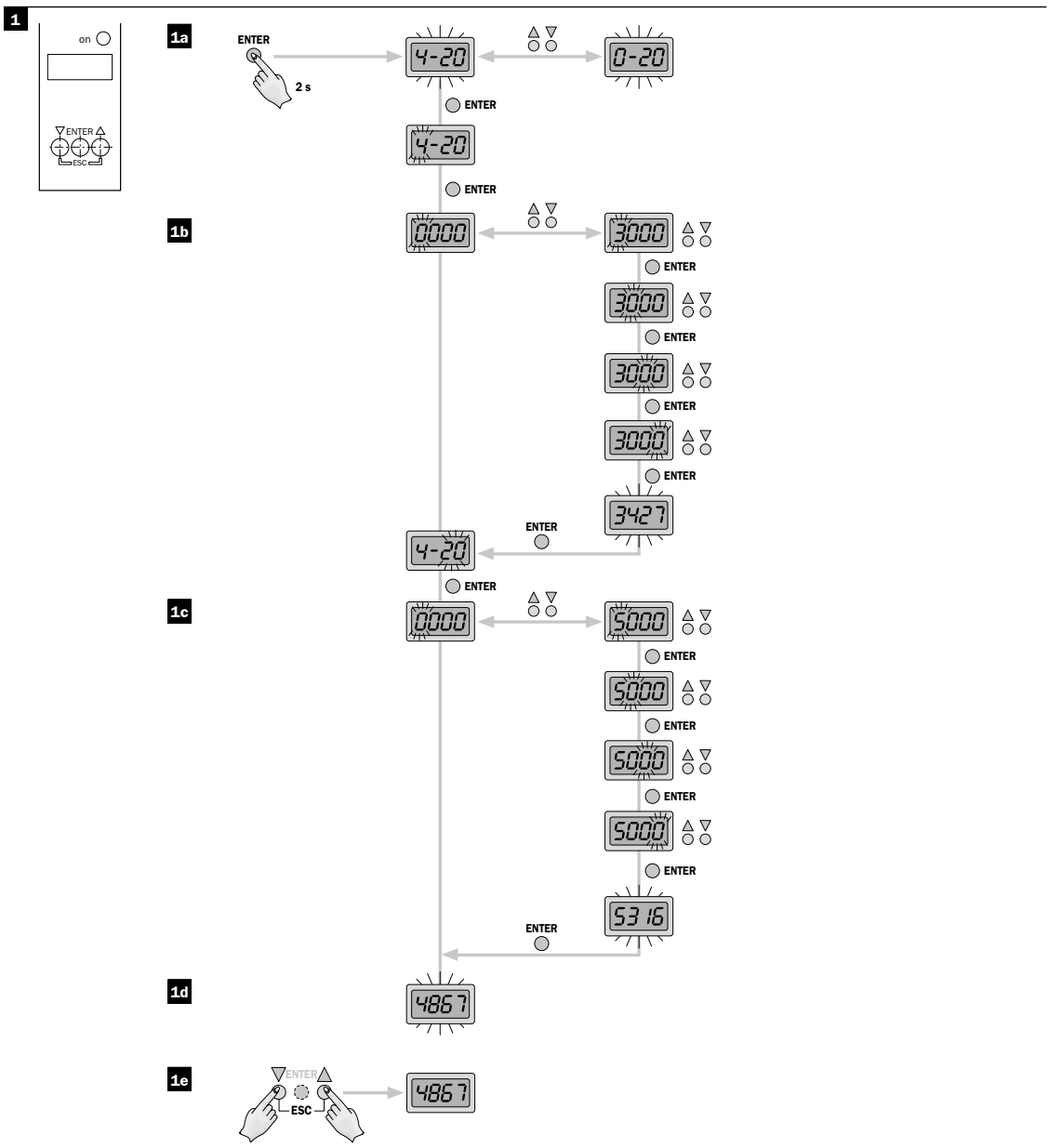
DT500		A111, A112, A211, A212	A311, A411	A511, A611
Area di misurazione ¹⁾	Meetbereik ¹⁾	Gama de medición ¹⁾	測量范围 ¹⁾	
- BK 6 %	- BK 6 %	- BK 6 %	- BK 6 %	
- WH 90 %	- WH 90 %	- WH 90 %	- WH 90 %	
Diametro punto luminoso/distanza	Lichtvlekdiameter/Bereik	Diámetro de mancha de luz/distancia de mancha de luz	光点直径/距离	
Riproducibilità	Reproduceerbaarheid	Reproducibilidad	再现性	
Precisione	Nauwkeurigheid	Exactitud	精确度	
Drift temperatura	Temperatuurdrift	Deriva de temperatura	温度漂移	
Tensione di alimentazione V _s	Voedingsspanning V _s	Tensión de alimentación V _s	电源电压 V _s	
Tempo di risposta	Aansprektijd	Tiempo de reacción	响应时间	
Uscita analogica ⁸⁾	Analoge output ⁸⁾	Salida analógica ⁸⁾	模拟输出 ⁸⁾	
MF: Teach esterno/Laser off	MF: Extern Teach/Laser off	MF: Extern Teach/Laser off	MF: 外部示教/激光关	
RS 422	RS 422	RS 422	RS 422	
Tipo di protezione (IEC 144)	Beveiligingswijze (IEC 144)	Tipo de protección (IEC 144)	保护等级 (IEC 144)	
Temperatura ambiente di esercizio	Omggevingstemperatuur bij werking	Temperatura ambiente de servicio	工作环境温度	
- Senza riscaldamento ⁶⁾	- Zonder verwarming ⁶⁾	- Sin calefacción ⁶⁾	- 不带加热装置 ⁶⁾	
- Con riscaldamento ⁷⁾	- Met verwarming ⁷⁾	- Con calefacción ⁷⁾	- 带加热装置 ⁷⁾	

¹⁾ In ambient light, max. 1 klx of constant light
²⁾ Only clear to 7 m
³⁾ Only clear to 150 m
⁴⁾ Limits, residual ripple max. 5 V_{ss}
⁵⁾ Only valid for devices with analog output.
⁶⁾ At -10 °C: Warm-up phase typically 7 minutes at V_s = 24 V, typically 10 minutes at V_s = 10 V
⁷⁾ At < -10 °C: V_s ≥ 24 V, warm-up phase typically 30 minutes
⁸⁾ Auflösung des Analogausgangs (12 bit) limitiert die Genauigkeit bei höheren Reichweiten

¹⁾ Bei Fremdlicht max. 1 kLux Gleichlicht
²⁾ Eindeutig nur bis 7 m
³⁾ Eindeutig nur bis 150 m
⁴⁾ Grenzwerte, Restwelligkeit max. 5 V_{SS}
⁵⁾ Nur gültig für Geräte mit Analogausgang. Bei Geräten mit serieller Schnittstelle RS-422 kein MF verfügbar.
⁶⁾ Bei -10 °C: Aufwärmphase typ. 7 Minuten bei V_s = 24 V, typ. 10 Minuten bei V_s = 10 V
⁷⁾ Bei < -10 °C: V_s ≥ 24 V, Aufwärmphase typ. 30 Minuten
⁸⁾ Resolution of analog output (12 bit) limits the accuracy at longer measurement ranges

¹⁾ Em caso de luz externa, máx. 1 kLux de luz constante
²⁾ Claramente só até 7 m
³⁾ Claramente só até 150 m
⁴⁾ Valores limite, ondulação residual máx. 5 V_{SS}
⁵⁾ Válido somente para dispositivos com saída analógica. Dispositivos com interface RS-422, sem MF.
⁶⁾ A -10 °C: fase de aquecimento típico de 7 minutos a V_s = 24 V, típico de 10 minutos a V_s = 10 V
⁷⁾ A < -10 °C: V_s ≥ 24 V, fase de pré-aquecimento típico de 30 minutos
⁸⁾ La resolución de la sortie analógica (12 bits) limita la precisión en gamas mais elevadas

¹⁾ Ved omgivende lys maks. 1 klux konstant lys
²⁾ Kun entydig op til 7 m
³⁾ Kun entydig op til 150 m
⁴⁾ Grænseværdier, resterende bølgethed máx. 5 V_{SS}
⁵⁾ Gælder kun for enheder med analog udgang. Enheder med interface RS-422 uden MF.
⁶⁾ Ved -10 °C: opvarmningstid på typ. 7 minutter ved V_s = 24 V, typ. 10 minutter ved V_s = 10 V
⁷⁾ Ved < -10 °C: V_s ≥ 24 V, opvarmningstid på typ. 30 minutter
⁸⁾ Opløsningen på det analoge output (12 bit) begrænser nøjagtigheden ved højere intervaller



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Reproducibility	Reproduzierbarkeit	Reproductibilité	Reprodutibilidade	Reproducerbarhed
Preciseness	Genauigkeit	Précision	Exatidão	Præcision
Temperature drift	Temperaturdrift	Dérive due à la température	Temperatura de deriva	Temperaturdrift
Supply voltage V _s	Versorgungsspannung V _s	Tension d'alimentation V _s	Tensão de força V _s	Forsyningsspænding V _s
Response time	Ansprechzeit	Temps de réponse	Tempo de reação	Responstid
Analogue output ⁸⁾	Analogausgang ⁸⁾	Sortie analogique ⁸⁾	Saída analógica ⁸⁾	Analog udgang ⁸⁾
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- With heating ⁷⁾	- Mit Heizung ⁷⁾	- Avec chauffage ⁷⁾	- Com aquecimento ⁷⁾	- Med opvarmning ⁷⁾

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Area di misurazione ¹⁾	Meetbereik ¹⁾	Gama de medición ¹⁾	測量范围 ¹⁾	
- BK 6 %	- BK 6 %	- BK 6 %	- BK 6 %	
- WH 90 %	- WH 90 %	- WH 90 %	- WH 90 %	
Diametro punto luminoso/distanza	Lichtvlekdiameter/Bereik	Diámetro de mancha de luz/distancia de mancha de luz	光点直径/距离	
Riproducibilità	Reproduceerbaarheid	Reproducibilidad	再现性	
Precisione	Nauwkeurigheid	Exactitud	精确度	
Drift temperatura	Temperatuurdrift	Deriva de temperatura	温度漂移	
Tensione di alimentazione V _s	Voedingsspanning V _s	Tensión de alimentación V _s	电源电压 V _s	
Tempo di risposta	Aansprektijd	Tiempo de reacción	响应时间	
Uscita analogica ⁸⁾	Analoge output ⁸⁾	Salida analógica ⁸⁾	模拟输出 ⁸⁾	
MF: Teach esterno/Laser off	MF: Extern Teach/Laser off	MF: Extern Teach/Laser off	MF: 外部示教/激光关	
RS 422	RS 422	RS 422	RS 422	
Tipo di protezione (IEC 144)	Beveiligingswijze (IEC 144)	Tipo de protección (IEC 144)	保护等级 (IEC 144)	
Temperatura ambiente di esercizio	Omggevingstemperatuur bij werking	Temperatura ambiente de servicio	工作环境温度	
- Senza riscaldamento ⁶⁾	- Zonder verwarming ⁶⁾	- Sin calefacción ⁶⁾	- 不带加热装置 ⁶⁾	
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²⁾ Only clear to 7 m
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⁴⁾ Limits, residual ripple max. 5 V_{ss}
⁵⁾ Only valid for devices with analog output.
⁶⁾ At -10 °C: Warm-up phase typically 7 minutes at V_s = 24 V, typically 10 minutes at V_s = 10 V
⁷⁾ At < -10 °C: V_s ≥ 24 V, warm-up phase typically 30 minutes
⁸⁾ Auflösung des Analogausgangs (12 bit) limitiert die Genauigkeit bei höheren Reichweiten

¹⁾ Bei Fremdlicht max. 1 kLux constant light
²⁾ Eindeutig nur bis 7 m
³⁾ Eindeutig nur bis 150 m
⁴⁾ Grenswaarden, restpulsatie max. 5 V_{SS}
⁵⁾ Alleen geldig voor apparaten met analoge output. Apparaten met interface RS-422 zonder MF.
⁶⁾ Bij -10 °C: opwarmfase van typisch 7 minuten bij V_s = 24 V, typisch 10 minuten bij V_s = 10 V
⁷⁾ Bij < -10 °C: V_s ≥ 24 V, opwarmfase van typisch 30 minuten
⁸⁾ De resolutie van de analoge uitgang (12 bit) beperkt de nauwkeurigheid bij hogere bereiken

¹⁾ Em caso de luz externa, máx. 1 kLux de luz uniforme
²⁾ Claramente só hasta 7 m
³⁾ Claramente solo hasta 150 m
⁴⁾ Valores limite, ondulação residual máx. 5 V_{SS}
⁵⁾ Solo válido para dispositivos com saída analógica. Dispositivos com interfaz RS-422 sin MF.
⁶⁾ Con -10 °C: fase de calentamiento típica de 7 minutos con V_s = 24 V, típica de 10 minutos con V_s = 10 V
⁷⁾ Con < -10 °C: V_s ≥ 24 V, fase de calentamiento típica de 30 minutos
⁸⁾ La resolución de la salida analógica (12 bits) limita la precisión en los rangos más altos

¹⁾ 使用外部光线时最高 1 kLux 直流光线
²⁾ 单值仅至 7 米
³⁾ 单值仅至 150 米
⁴⁾ 极限值，残余纹波最大 5 V_{SS}
⁵⁾ 仅对带模拟输出的设备有效。带接口 RS-422，不带 MF 的设备。
⁶⁾ -10 °C：预热阶段典型值为 7 分钟，V_s = 24 V 时，预热阶段典型值为 10 分钟
⁷⁾ < -10 °C：V_s ≥ 24 V 时，预热阶段典型值为 30 分钟
⁸⁾ 模拟输出的分辨率（12 位）限制了较高量程的精度

