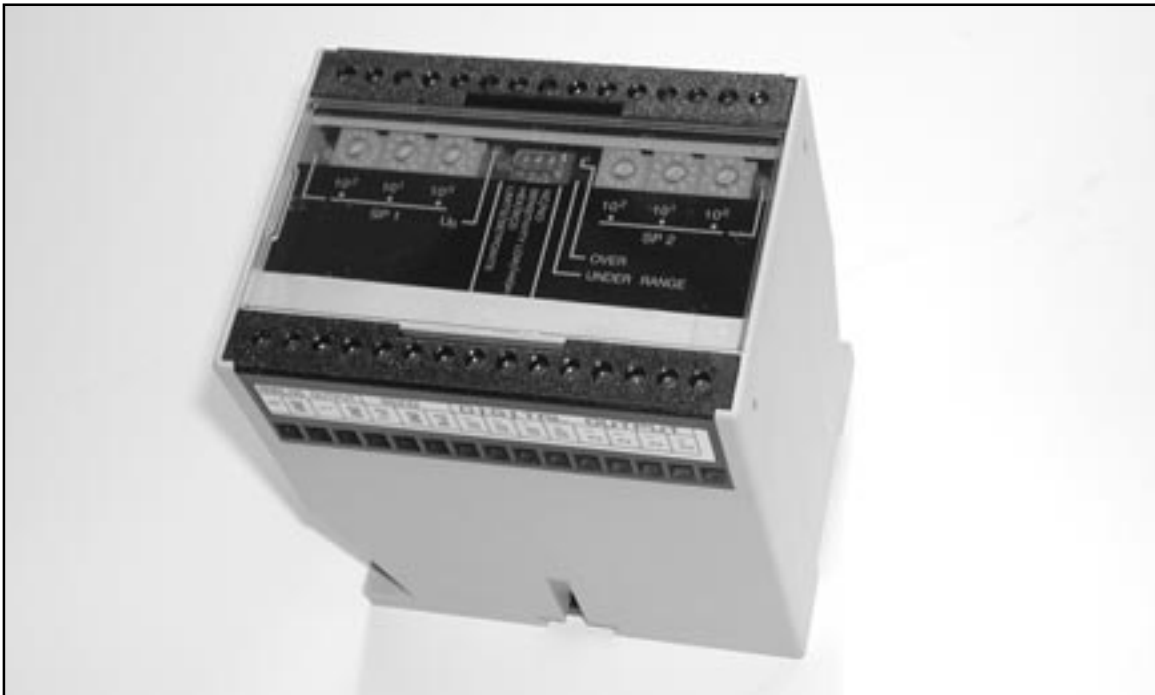


Ultrasonic

Ultraschall / Ultrasonique / Ultrasonidos /
Sensori ad ultrasuoni / Ultrasonisk

Evaluation Unit for Sensor Head

Auswerteeinheit für Detektionskopf / Module d'évaluation
pour tête de détection / Unidad de Evaluación para Sensor /
Unità di valutazione per testina di rilevamento /
Evalueringensenhed til tastehoved



User Manual

Bedienungsanleitung
Manuel de l'utilisateur
Manual del Usuario
Manuale d'istruzione
Brugerhåndbog

CARLO GAVAZZI

ENGLISH

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Ultrasonic Evaluation Unit for Sensor Head Type UC EU 80-1

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Installation

1. Mounting the unit

Mount the unit in a suitable place so the terminals and the switches are accessible. The unit is prepared for DIN-rail mounting.

2. Supplying the unit

Connect terminal 1 and 2 to +24 VDC and ground, respectively.
Connect the sensor head UC80CND80FSM1 to the terminals 3, 4, 5, 6 and 8 according to the wiring diagram.

3. Programming the unit and the sensor head UC80CND80FSM1

Make the settings on the unit according to the following description.

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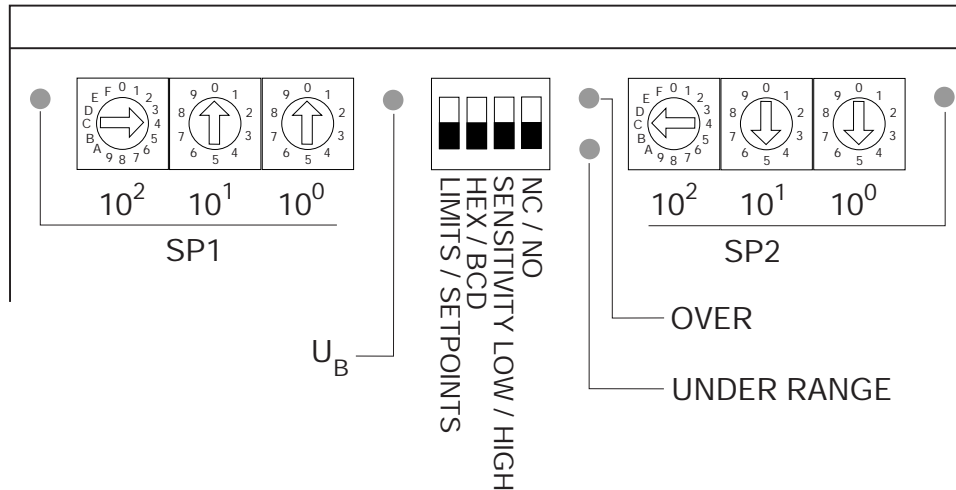
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Front Panel

This chapter gives a brief description of the switches and the LED's, which are all placed on the front panel.

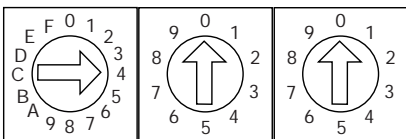
Switches and LED's on the front panel



LED's

- SP1 ON when Setpoint 1 is active.
- SP2 ON when Setpoint 2 is active.
- U_B ON when power is applied.
- OVER ON when the measurement exceeds the programmed range.
- UNDER ON when the measurement is below the programmed range.

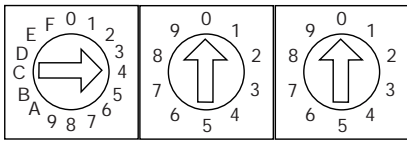
Digital switches



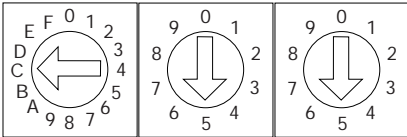
The two setpoints can be adjusted individually with these 2 groups of 3 digital switches (1 hexadecimal and 2 decimal switches in each group). The resolution is in cm.

- 10^2 = hundreds switch
- 10^1 = tens switch
- 10^0 = units switch

Examples:



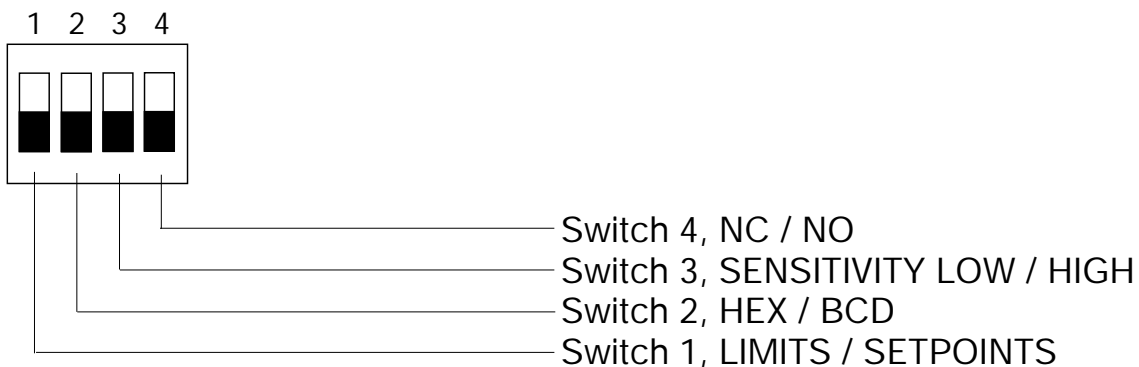
4, 0, 0, means a setting of 400 cm. With this setting of the switches to the left on the front plate, SP1 is set to 400 cm.



C, 5, 5, means a setting of 1255 cm (hex "C" = decimal "12"). With this setting of the switches to the right on the front plate, SP2 is set to 1255 cm.

The setting of the setpoints determines the polarity of the analogue output function. See "LIMITS" - function switch 1.

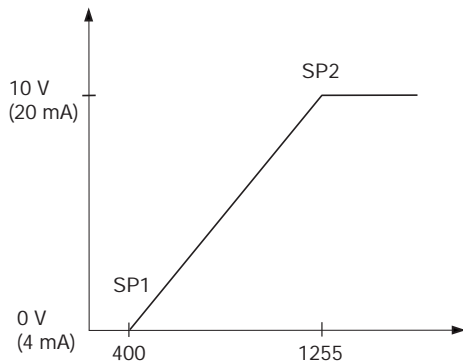
Function switches 1-4



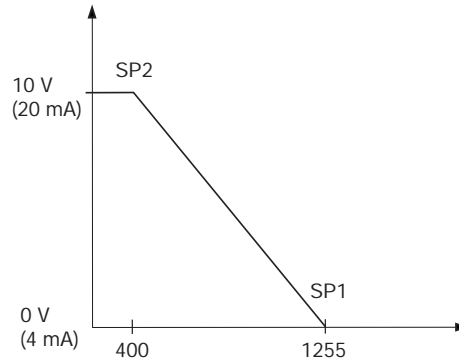
Switch 1: LIMITS / SETPOINTS

OFF: Output is in the range of 0...8000 mm (programmable).
 The analogue output signal is in the range of 800 to 8000 mm.

ON: Selectable polarity of the analogue output slope:
 Positive slope when $SP1 < SP2$. SP1 defines the zero point (0 V or 4 mA) and the shortest distance. SP2 defines the final value (10 V or 20 mA) and the longest distance.
 Negative slope when $SP2 < SP1$. SP1 defines the zero point (0 V or 4 mA) and the longest distance. SP2 defines the final value (10 V or 20 mA) and the shortest distance. See the following drawing.



$SP1 < SP2$: Positive slope



$SP2 < SP1$: Negative slope

Switch 2: HEX / BCD

OFF: Multiplexed data output, BCD coded.

ON: Multiplexed data output, HEX coded.

Switch 3: SENSITIVITY LOW / HIGH

OFF: Receive sensitivity and beam angle set to maximum.

ON: Receive sensitivity and beam angle set to minimum.

Switch 4: NC / NO

OFF: The switching outputs for setpoint 1 and setpoint 2 are normally open (NO).

ON: The switching outputs for setpoint 1 and setpoint 2 are normally closed (NC).

Serial Interface

Serial interface is fixed to data format: 9600, N, 8, 2. Special software is not needed. Communication is possible with every terminal program.

Hold / synchronizing input

By connecting Hold (HLD, active LO) to ground, the sensor is forced to stop operating and the last calculated distance is stored at the output. To avoid mutual interference from several sensors, these are simply

synchronized by interconnecting the HLD inputs. All synchronized sensors transmit at the same time.

Switching Outputs

The switching outputs are all PNP, 100 mA and short-circuit protected.

SP1, SP2

Independently adjustable in steps of 1 mm.
Switching hysteresis is fixed to approx. 1%.
Switching characteristic NO or NC can be selected.

ORA

If the analogue output has a positive slope, ORA indicates that no echo is received or the measured distance has exceeded the analogue range.

If the output slope is negative, ORA indicates that the distance is in the dead zone or below the analogue range.

URA

If the analogue output has a positive slope, URA indicates that the measured distance is in the dead zone or below the analogue range.

If the output slope is negative, URA indicates that no echo is received or the distance has exceeded the analogue range.

Analogue Outputs

U Voltage output, 0 - 10 V, $R_{\text{MIN}} = 1450 \text{ ohm}$

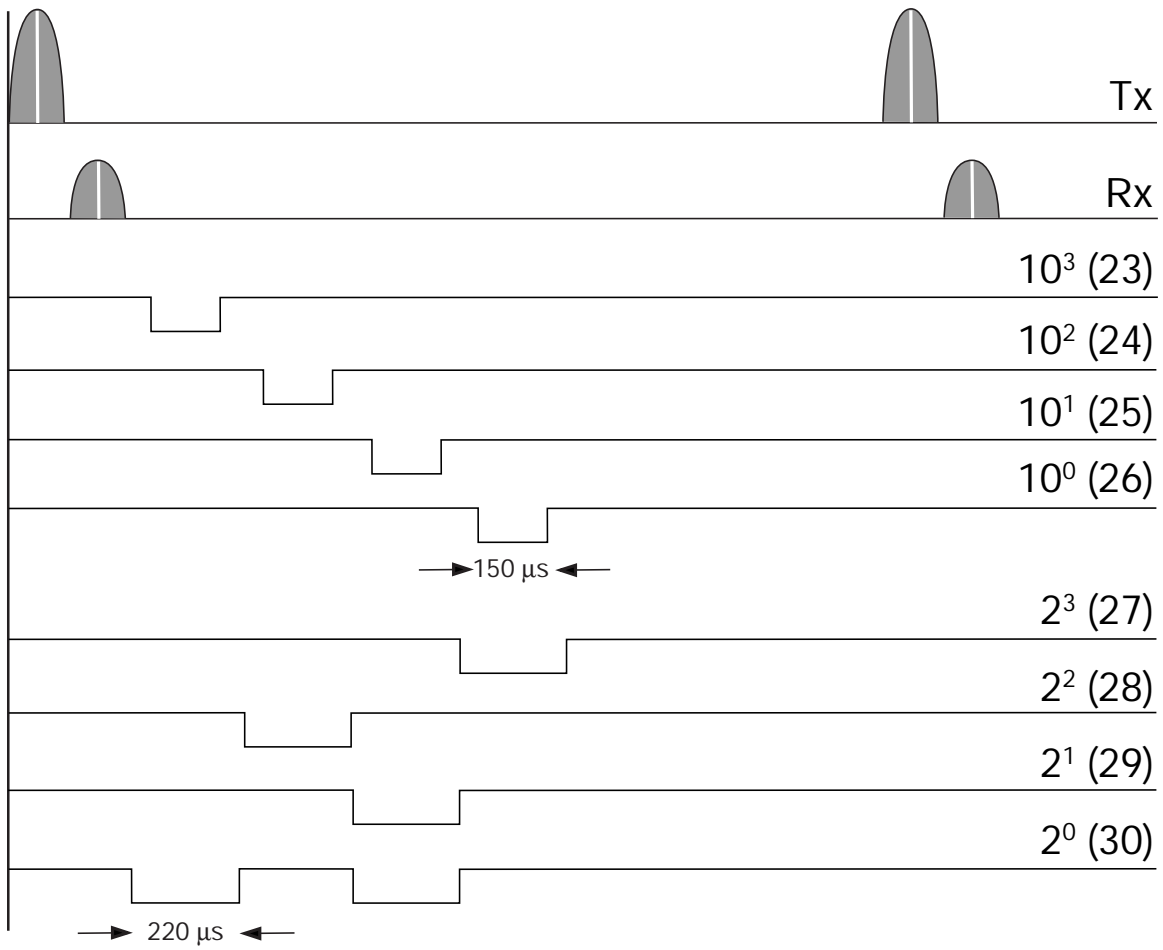
I Current output, 4 - 20 mA, $R_{\text{MAX}} = 250 \text{ ohm}$

Multiplexed Digital Outputs

BCD or HEX. 4 data bits and 4 decade strobes NPN, open collector, 3+ V, 20 mA, short-circuit protected.

Timing diagram of the multiplexed digital outputs - see following drawing.

Timing diagram of the multiplexed digital outputs



The actual output value is 1438.

Rated operational voltage (U_e) / Nenn-Betriebsspannung /
Tension de fonctionnement nominale / Tensión de alimentación /
Tensione di alimentazione / Nominelt spændingsområde

Ripple included / einschl. Restwelligkeit / ondulation incluse /
ondulación incluida / ripple incluso / inkl. ripple

19 - 30 VDC (19 - 30 VCC)

Ripple / Restwelligkeit / Ondulation / Ondulación / Ripple / Ripple

≤ 10%

Protection / Schutz / Protection / Protección / Protezione / Beskyttelse

Reverse polarity, short-circuit, transients

Verpolung, Kurzschluss, Transienten /

Inversion de polarité, court-circuit, transitoires /

Inversión de polaridad, cortocircuitos, transitorios /

Inversione di polarità, corto circuito, transitori /

Polaritet, kortslutning, transienter

Rated operating distance (S_n) / Nenn-Schaltabstand /
Distance nominale de fonctionnement / Distancia nominal de detección /
Distanza di attivazione nominale / Nominel tasteafstand

800 - 8000 mm

Inputs (pin) / Eingänge (Klemme) / Entrées (broche) / Entradas (patilla) /
Ingressi (pin) / Indgange (ben)

Sensor head (3, 4, 5, 6, 8) / Detektionskopf / Tête de détection / Sensor /
Testina di rilevamento / Tastehoved

Hold, active LO (10) / Haltefunktion, aktiv LO / Attente, active LO /
Retención, LO activo / Ingresso di mantenimento (LO attivato) / Hold, aktiv LO

Outputs (pin) / Ausgänge (Klemme) / Sorties (broche) / Salidas (patilla) / Uscite (pin) / Udgange (ben)

Setpoint 1 (14) / Sollwert 1 / Point de consigne 1 / Punto de consigna 1 / Setpoint 1 / Forvalgt grænseværdi 1

Setpoint 2 (15) / Sollwert 2 / Point de consigne 2 / Punto de consigna 2 / Setpoint 2 / Forvalgt grænseværdi 2

Over range (12) / Meßbereichsüberschreitung / Dépassement de gamme en plus / Rango máximo / Overrange / Overområde

Under range (13) / Meßbereichsunterschreitung / Dépassement de gamme en moins / Rango mínimo / Underrange / Underområde

Analogue output, 0-10 V, R > 1450 ohm (16) / Analogausgang / Sortie analogique / Salida analógica / Uscita analogica / Analog udgang

Analogue output, 4-20 mA, R < 250 ohm (18) / Analogausgang / Sortie analogique / Salida analógica / Uscita analogica / Analog udgang

Display, BCD, NPN, open collector, 30 VDC, 20 mA (23, 24, 25, 26) / Anzeige, BCD, NPN, offener Kollektor / Afficheur, BCD, NPN, collecteur ouvert / Display, BCD, NPN, colector abierto / Display, BCD, NPN, collettore aperto / Display BCD, NPN, åben kollektor

Display, Hex, NPN, open collector, 30 VDC, 20 mA (27, 28, 29, 30) / Anzeige, Hex, NPN, offener Kollektor / Afficheur, Hex, NPN, collecteur ouvert / Display, Hex, NPN, colector abierto / Display, Hex, NPN, collettore aperto / Display, Hex, NPN, åben kollektor

Operating temperature / Umgebungstemperatur, Betrieb / Température en fonctionnement / Temperatura ambiente, trabajo / Temperatura di funzionamento / Omgivelsestemperatur, drift

0° --> +50°C (32° --> +122°F)

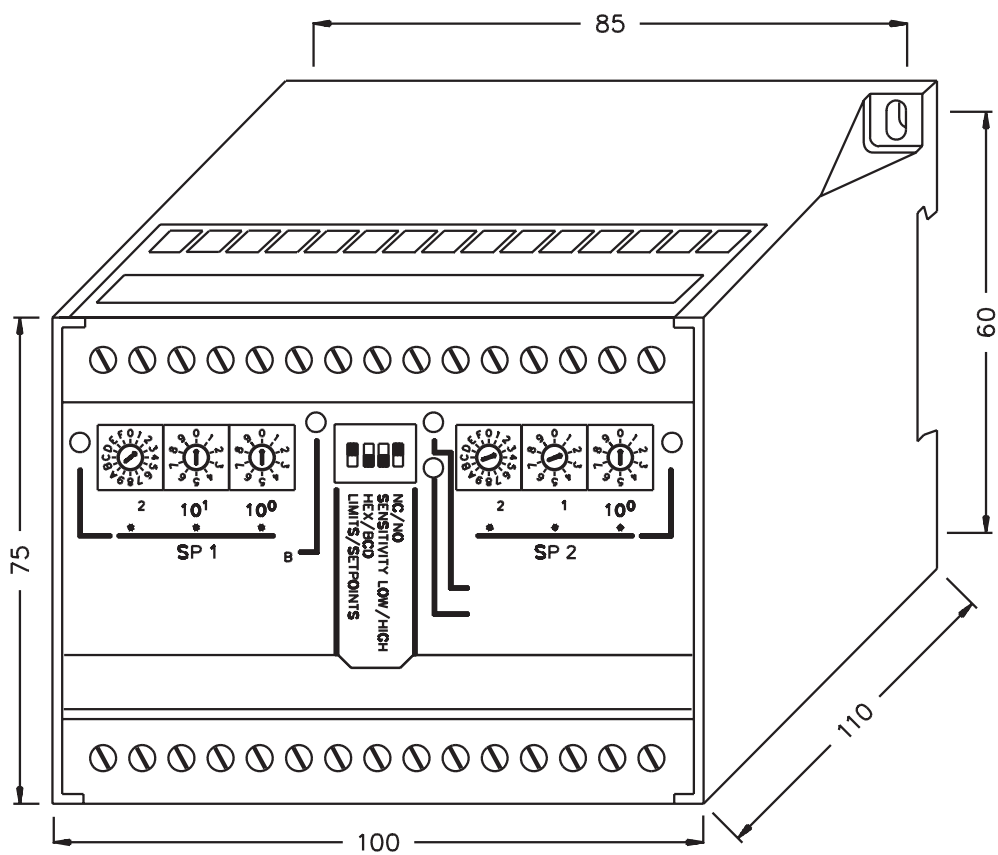
Storage temperature / Umgebungstemperatur, Lager / Température stockage / Temperatura ambiente, almacenamiento / Temperatura di immagazzinaggio / Omgivelsestemperatur, lager

-25° --> +85°C (-13° --> +185°F)

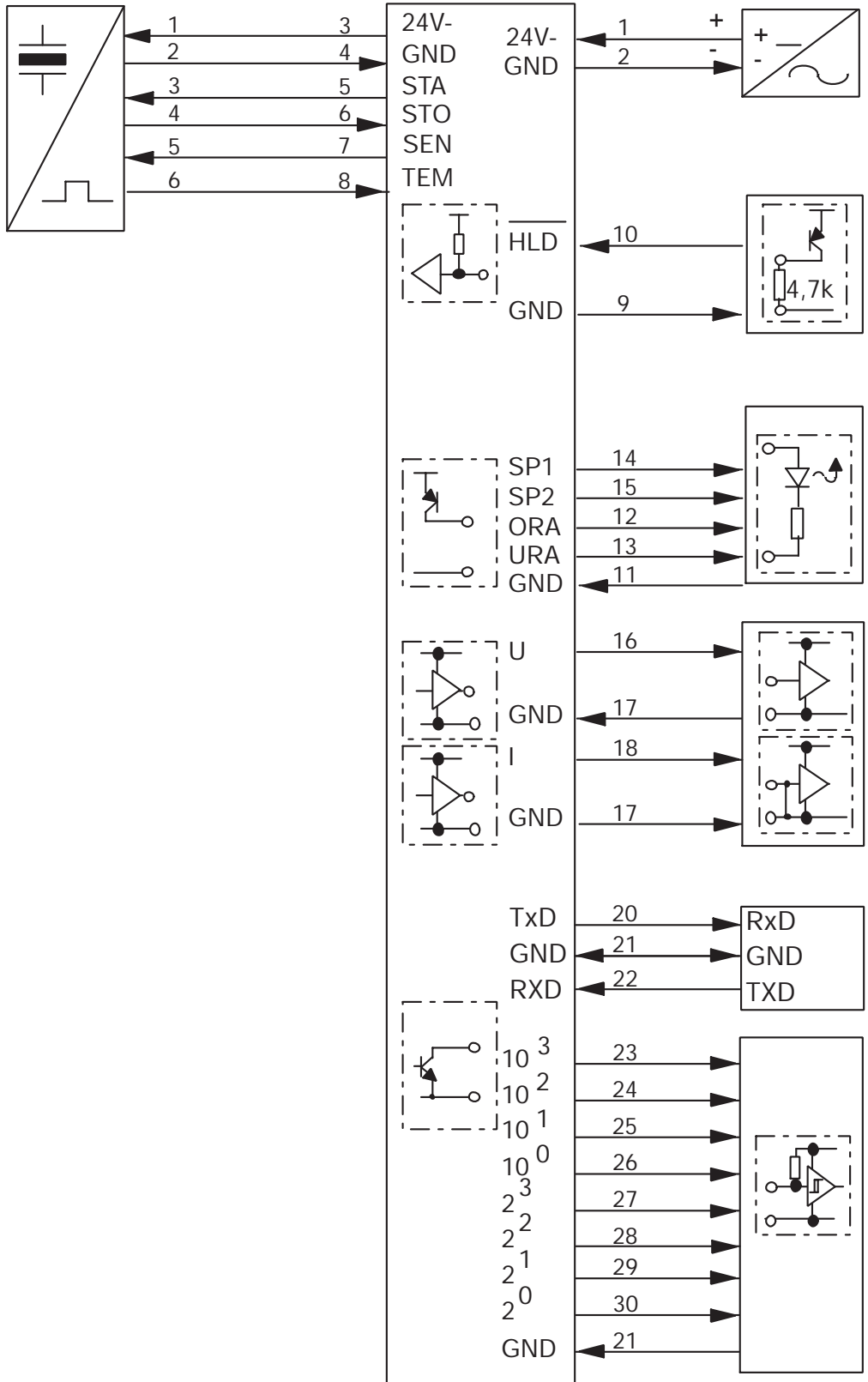
Degree of protection / Schutzart / Indice de protection / Grado de protección / Grado di protezione / Tæthedegrad

IP 40

Dimensions / Abmessungen / Dimensions / Dimensiones / Dimensioni / Dimensioner



Wiring Diagram / Schaltbild / Schéma de Câblage / Diagrama de Conexiones / Collegamenti Elettrici / Forbindelsesdiagram



RS 232 Interface / RS 232-
Schnittstelle / Interface RS 232 /
Interfaz RS 232 / Interfaccia RS
232 / RS232-interface

Display / Anzeige /
Afficheur / Display /
Display / Display

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External power supply / Externe Betriebsspannung / Alimentation externe / Alimentación externa / Alimentazione esterna / Ekstern forsyningsspænding

- | | | |
|---|------|--|
| 1 | 24 V | Power supply / Betriebsspannung / Alimentation / Alimentación / Alimentazione / Forsyningsspænding |
| 2 | GND | Ground, power supply / Erdungsleitung, Betriebsspannung / Masse, alimentation / Tierra, alimentación / Collegamento di terra, alimentazione / Jord, forsyningsspænding |

Sensor head UC80CND80FSM1 / Detektionskopf UC80CND80FSM1 / Tête de détection UC80CND80FSM1 / Sensor UC80CND80FSM1 / Testina di rilevamento UC80CND80FSM1 / Tastehoved UC80CND80FSM1

- | | | |
|---|------|---|
| 3 | 24 V | Sensor supply / Sensor, Betriebsspannung / Alimentation du détecteur / Alimentación del sensor / Alimentazione del sensore / Aftasterforsyning |
| 4 | GND | Ground, sensor supply / Erdungsleitung, Sensor-Betriebsspannung / Masse, alimentation du détecteur / Tierra, alimentación del sensor / Collegamento di terra, alimentazione del sensore / Jord, forsyningsspænding |
| 5 | STA | Transmit pulse / Sendeimpuls / Impulsion d'émission / Pulso de transmisión / Impulso di trasmissione / Sendeimpuls |
| 6 | STO | Received pulse / Empfangsimpuls / Impulsion reçue / Pulso recibido / Impulso ricevuto / Modtaget impuls |
| 7 | SEN | Receiver sensitivity (not connected) / Empfängerempfindlichkeit (nicht angeschlossen) / Sensibilité du récepteur (non raccordé) / Sensibilidad del receptor (no conectado) / Sensibilità ricevitore (non collegato) / Modtagerfølsomhed (ikke tilsluttet) |
| 8 | TEM | Temperature signal / Temperatursignal / Signal de température / Señal de temperatura / Segnale di temperatura / Temperatursignal |

Remote control / Fernbedienung / Commande à distance / Control remoto / Controllo a distanza / Fjernbetjening

- | | | |
|----|-----|---|
| 9 | GND | Ground / Erdung / Masse / Tierra / Collegamento di terra / Jord |
| 10 | HLD | Transmit disable, synchronisation / Sendefunktion deaktivieren, Synchronisation / Désactivation de l'émission, synchronisation / Inhabilitación de transmisión, sincronización / Trasmissione disabilitata, sincronizzazione / Transmission deaktiveret, synkronisering |

Switching outputs / Schaltausgänge / Sorties commutation / Salidas digitales / Uscite di commutazione / Aktiveringsudgange

- | | | |
|----|-----|---|
| 11 | GND | Ground / Erdung / Masse / Tierra / Collegamento di terra / Jord |
| 12 | ORA | Over Range, no received pulse / Meßbereichsüberschreitung, kein Impuls empfangen / Dépassement de gamme en plus, aucune impulsion reçue / Rango máximo, ningún pulso recibido / Overrange, impulso non ricevuto / Overområde, ingen impuls modtaget |

Diagrama de Conexiones / Collegamenti Elettrici / Forbindelsesdiagram

13	URA	Under Range, "blind zone" / Meßbereichsunterschreitung, Toter Bereich / Dépassement de gamme en moins, "zone aveugle" / Rango mínimo, "zona ciega" / Underrange, "zona cieca" / Underområde, "blind zone"
14	SP1	Setpoint 1 / Sollwert 1 / Point de consigne 1 / Punto de consigna 1 / Setpoint 1 / Forvalgt grænseværdi 1
15	SP2	Setpoint 2 / Sollwert 2 / Point de consigne 2 / Punto de consigna 2 / Setpoint 2 / Forvalgt grænseværdi 2

Analogue outputs / Analogausgänge / Sorties analogiques / Salidas analógicas / Uscite analogiche / Analoge udgange

16	U	Voltage output 0... 10V / Spannungsausgang / Tension de sortie / Salida de tensión / Tensione di uscita / Udgangsspænding
17	GND	Ground for voltage output / Erdungsleitung für Spannungsausgang / Masse de la tension de sortie / Tierra para salida de tensión / Collegamento di terra per tensione di uscita / Jord for udgangsspænding
18	I	Current output 4... 20mA / Stromausgang / Courant de sortie / Salida de intensidad / Corrente di uscita / Udgangsstrøm
19	GND	Ground for current output / Erdungsleitung Stromausgang / Masse du courant de sortie / Tierra para salida de intensidad / Collegamento di terra per corrente di uscita / Jord for udgangsstrøm

Interface, serial output / Schnittstelle, serieller Ausgang / Interface, sortie série / Interfaz, salida serie / Interfaccia, uscita seriale / Interface, seriel udgang

20	TxD	Data output, serial / Serieller Datenausgang / Données de sortie série / Salida de datos, serie / Uscita dati, seriale / Dataudgang, seriel
21	GND	Ground, Data output, serial / Erdungsleitung, serieller Datenausgang / Masse, Données de sortie série / Tierra, salida de datos, serie / Collegamento di terra, uscita dati, seriale / Jord, dataudgang, seriel
22	RxD	Data input, serial / Serieller Dateneingang / Entrée de données série / Entrada de datos, serie / Ingresso dati, seriale / Dataindgang, seriel

Display outputs / Displayanzeigen / Sorties afficheur / Salidas del display / Uscite display / Displayudgange

23	10 ³	Ciffer 3 (Ziffer, chiffre, digito, numero, ciffer)
24	10 ²	Ciffer 2
25	10 ¹	Ciffer 1
26	10 ⁰	Ciffer 0
27	2 ³	Ciffer 3
28	2 ²	Ciffer 2
29	2 ¹	Ciffer 1
30	2 ⁰	Ciffer 0

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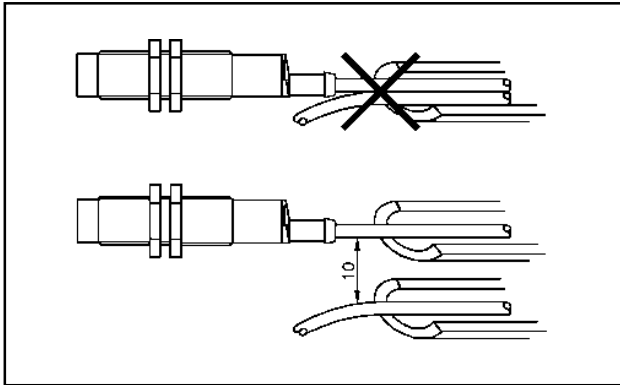
ITALIANO

DANSK

Installation Hints / Installationshinweise / Conseils d'Installation / No

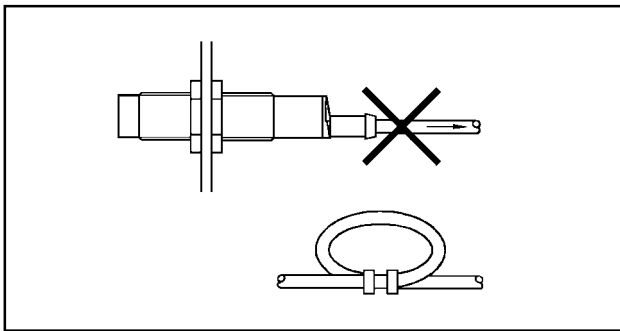
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To avoid interference from inductive voltage/current peaks, separate the proximity switch power cables from any other power cables, e.g. motor, contactor or solenoid cables

Um Störungen durch induktive Spannungs-/Stromspitzen zu vermeiden, Kabel der Näherungsschalter getrennt von anderen stromführenden Kabeln halten

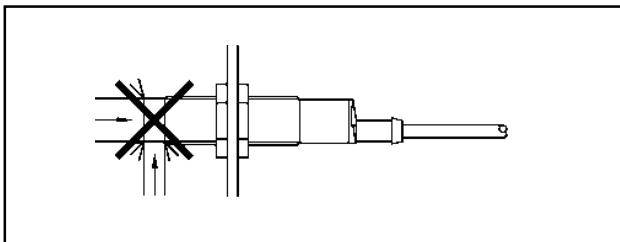


Relief of cable strain

Schutz vor Überdehnung des Kabels

The cable should not be pulled

Nicht am Kabel ziehen

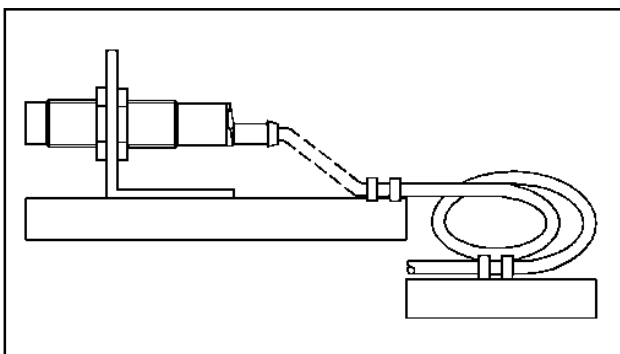


Protection of the sensing face

Schutz der Sensorfläche des Schalters

A proximity switch should not serve as mechanical stop

Näherungsschalter nicht als mechanischen Anschlag verwenden



Switch mounted on mobile carrier

Mobiler Näherungsschalter

Any repetitive flexing of the cable should be avoided

Wiederholtes Biegen des Kabels vermeiden

ormas de Instalación / Consigli per l'Installazione / Installationsråd og -vink

FRANÇAIS	ESPAÑOL	ITALIANO	DANSK
<p>Pour éviter les interférences issues des pics de tension et/ou des courants inductifs, veiller à toujours faire cheminer séparément les câbles d'alimentation des détecteurs de proximité et les câbles d'alimentation des moteurs, contacts ou solénoïdes</p>	<p>Para evitar interferencias de tensión inductiva/ picos de intensidad se deben separar los cables del sensor del resto de los cables de alimentación tales como cables de motor, contactores o solenoides</p>	<p>Al fine di evitare interferenze di tipo elettrico, separare i cavi di alimentazione del sensore di prossimità dai cavi di potenza</p>	<p>For at undgå støjindflydelse fra induktive strøm-/spændings-spids'er skal aftasterkablet adskilles fra andre kraftkabler, f.eks. fra motorer, transformatorer og magnetventiler</p>
<p>Tension des câbles</p>	<p>Alivio de la tensión del cable</p>	<p>Posizione del cavo</p>	<p>Aflastning af kabel</p>
<p>Eviter toute contrainte en traction du câble</p>	<p>No se debe tirar del cable</p>	<p>Il cavo non deve essere teso</p>	<p>Der bør ikke trækkes i kablet</p>
<p>Protection de la face de détection du détecteur</p>	<p>Protección de la cara de detección</p>	<p>Protezione della parte sensibile del sensore</p>	<p>Beskyttelse af følerens tasteflade</p>
<p>Ne jamais utiliser un détecteur de proximité en tant que butée mécanique</p>	<p>Un sensor de proximidad nunca debe funcionar como tope mecánico</p>	<p>I sensori di prossimità non devono essere usati per bloccaggi meccanici</p>	<p>En aftaster bør ikke anvendes som mekanisk stop</p>
<p>Détecteur monté sur support mobile</p>	<p>Conector montado sobre portadora móvil</p>	<p>Sensore installato su pedana mobile</p>	<p>Aftaster monteret på bevægeligt underlag</p>
<p>Eviter toute répétition de courbure dans le cheminement du câble</p>	<p>Evitar doblar el cable repetidas veces</p>	<p>Evitare qualsiasi flessione ripetuta del cavo</p>	<p>Gentagne bøjninger af kablet bør undgås</p>

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Une société qualifiée selon ISO 9001
Empresa que cumple con ISO 9001
Certificato in conformità con l'ISO 9001
Kvalificeret i overensstemmelse med ISO 9001

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