



The pages in this document have been extracted from a larger document and as such any page numbers are relevant only to the original document.

HENGSTLER

Rotary Encoder Solutions Limited
Dutton Road
Redwither Business Park
Wrexham
LL13 9UL

tel: +44(0) 1978 664722
fax: +44(0) 1978 664733
email: sales@rotaryencodersolutions.com
web: www.rotaryencodersolutions.com

Rotary Encoder Solutions is part of the Industrial Encoders Direct Ltd. Group of Companies and is trading as Industrial Encoders Direct Ltd

The information shown in this document is for reference purposes only and forms no contractual obligation. Any detail in this document may be changed without prior notice. No liability is accepted for any information contained in this document.



HENGSTLER

Incremental Shaft Encoders Type RI 76 TD

Industrial types Hollow shaft



- Through shaft with up to diameter 42 mm
- Short overall length with an outside diameter of only 76 mm
- Easy installation by means of clamping ring
- Operating temperature up to 100 °C
- Application e.g.:
 - motors
 - printing machines
 - lifts

NUMBER OF PULSES

50 / 100 / 128 / 250 / 256 / 300 / 314 / 360 / 500 / 600 / 720 / 900 / 1000 / 1024 / 1250 / 1500 / 2048 / 2500 / 3072 / 4096 / 5000 / 8192 / 9000 / 10000
 Other number of pulses on request

TECHNICAL DATA mechanical

Shaft fixation	Clamping ring, front or rear
Coupling	stator coupling (hubshaft with tether)
Shaft diameter	15...42 mm (Available: 15, 16, 18, 20, 24, 25, 27, 28, 30, 32, 38, 40, 42 mm as well as 5/8", 1 5/8", 3/4")
Minimum length of mounting shaft	
Front clamping ring	32 mm with Ø 15...30, 35 mm with Ø >30 ... 42
Rear clamping ring	corresponding to total length of encoder
Max. parallel shaft misalignment	
with stator coupling A (flexible)	±2.0 mm axial, ±0.15 mm radial
with 1x stator coupling N (torsionally rigid)	±0.5 mm axial, ±0.3 mm radial
with 2x stator coupling N (torsionally rigid)	±0.3 mm axial, ±0.2 mm radial
Absolute max. speed	
	at 70 °C and IP64: 3 600 min ⁻¹ für Ø 15... 25
	at 70 °C and IP64: 1 800 min ⁻¹ für Ø >25 ... 42
	at 70 °C and IP40: 6 000 min ⁻¹ für Ø 15... 42
	at 100 °C always: 1 800 min ⁻¹ für Ø 15... 42
Torque	3...10 Ncm (depending on version)
Moment of inertia	140...420 gcm ² (depending on version)
Protection class (EN 60529)	
	Housing IP50, bearings IP40
	Option: Housing IP65, bearings IP64
Operating temperature	-25 ... +100 °C
Storage temperature	-25 ... +100 °C
Vibration resistance (IEC 68-2-6)	10 g = 100 m/s ² (10... 2000 Hz)
Shock resistance (IEC 68-2-27)	100 g = 1000 m/s ² (6 ms)
Connection	1.5 m cable ¹ radial
Housing	Aluminium
Weight	320 - 580 g (depending on version)

¹ Other cable length on request

Incremental Shaft Encoders Type RI 76 TD

Industrial types Hollow shaft

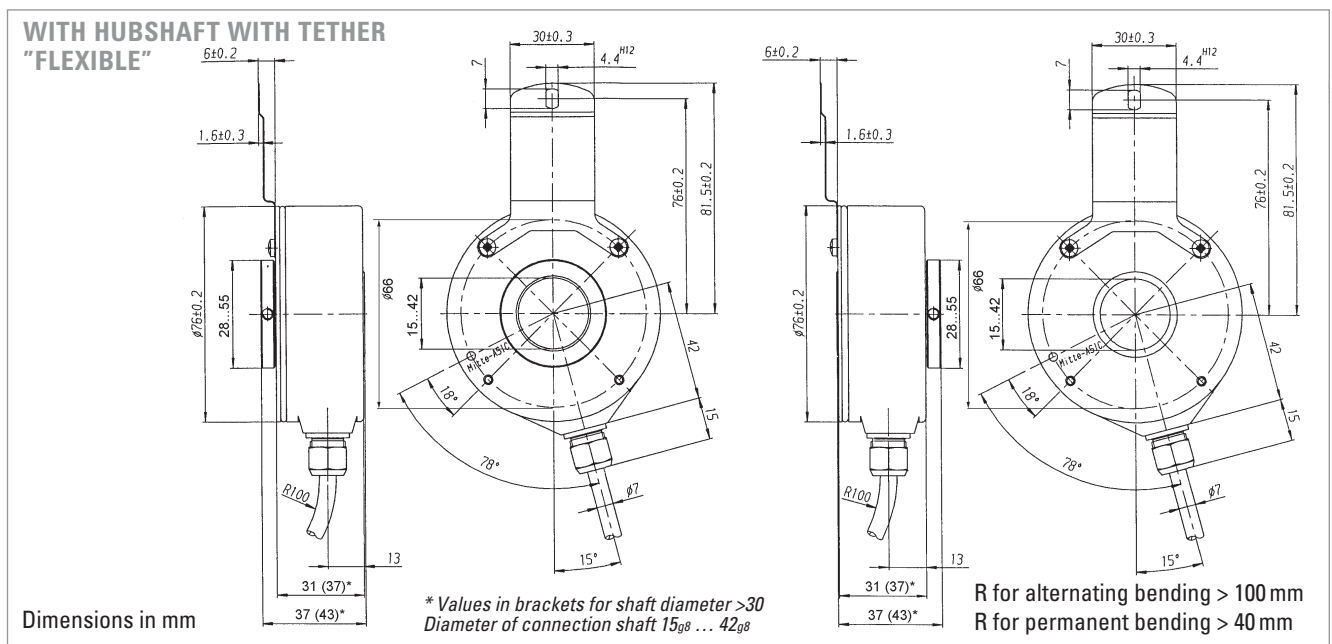
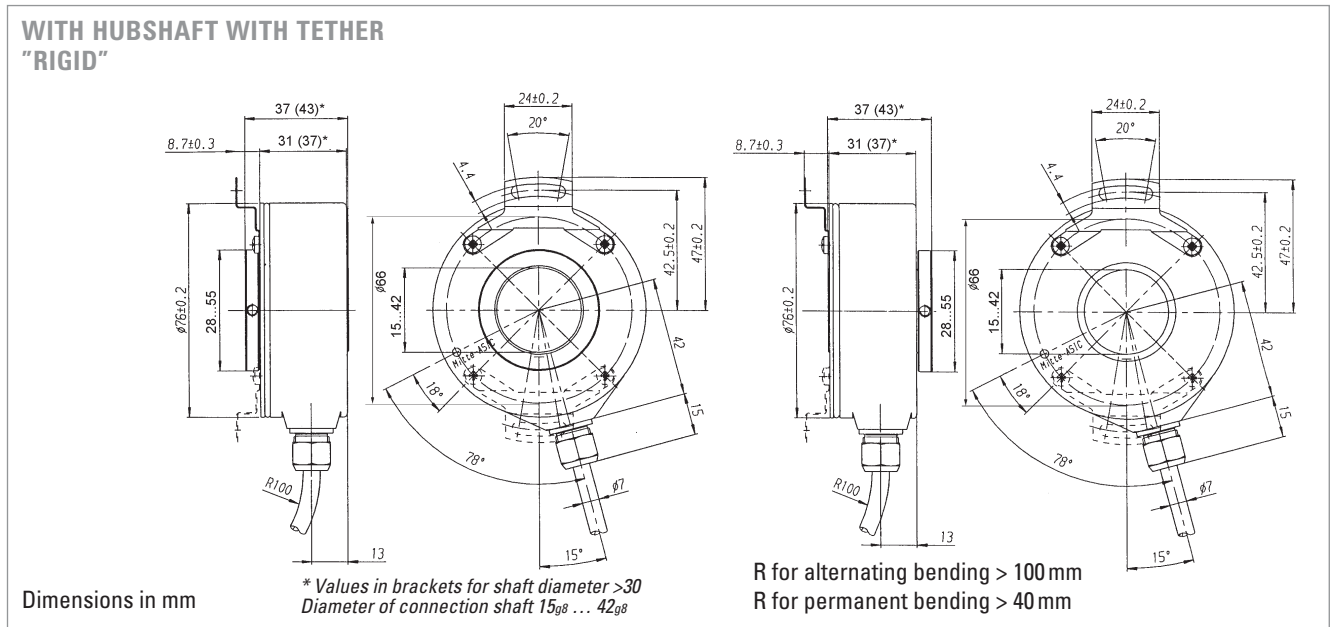
TECHNICAL DATA electrical

General design	as per DIN EN 61010-Part 1, protection class III, Contamination level 2, over voltage level II	
Supply voltage (SELV)	with RS 422 +Sense (T): DC 5V ± 10 % with RS 422 +Alarm (R): DC 5V ± 10 % oder DC 10 - 30V ¹ with push-pull (K, I): DC 10 - 30V ¹	
Max. current w/o load	max. 60 mA (DC 5V), 60 mA (DC 10V), 35 mA (DC 24V)	
Standard output versions ²	RS 422 (R):	A, B, N, \bar{A} , \bar{B} , \bar{N} , Alarm
	RS 422 (T):	A, B, N, \bar{A} , \bar{B} , \bar{N} , Sense
	push-pull (K):	A, B, N, Alarm
	push-pull complementary (I):	A, B, N, \bar{A} , \bar{B} , \bar{N} , Alarm

¹ Pole protection with supply voltage DC 10 - 30 V

² Output description and technical data see chapter "Technical basics"

DIMENSIONAL DRAWINGS



Incremental Shaft Encoders Type RI 76 TD

Industrial types Hollow shaft

SHAFT CONNECTION

Shaft fixing is done through a clamping ring either on the flange or cap side. As a rule, flange side clamping is better for smaller motors as the available shaft stub is correspondingly shorter.

On the other hand, cap side clamping is easier when there is sufficient shaft length available.

MOUNTING NECESSITIES

In order to compensate for axial and radial shaft eccentricity as well as any angle offset, the encoder flange must not be rigidly mounted. Please mount the flange with a flexible stator coupling (e.g. hubshaft with tether) as torque support.

There are two flexible mounting plates:

- A flexible hubshaft with tether (A) for higher levels of play and lower requirements for accuracy.
- A rigid hubshaft with tether (N) for reduced play and rigid connection with reduced swing angle. This is suitable in the case of higher accuracy and dynamics requirements.

PIN ASSIGNMENT Cable TPE

Colour (TPE)	Output circuit			
	RS 422 + Sense (T)	RS 422 + Alarm (R)	push-pull (K)	push-pull complementary (I)
brown	Channel A	Channel A	Channel A	Channel A
green	Channel \bar{A}	Channel \bar{A}		Channel \bar{A}
grey	Channel B	Channel B	Channel B	Channel B
pink	Channel \bar{B}	Channel \bar{B}		Channel \bar{B}
red	Channel N	Channel N	Channel N	Channel N
black	Channel \bar{N}	Channel \bar{N}		Channel \bar{N}
violet (white) ²	Sense GND	Alarm	Alarm	Alarm
blue	Sense V _{CC}	Sense V _{CC}		Sense V _{CC}
brown/green	DC 5 V	DC 5/10 - 30 V	DC 10 - 30 V	DC 10 - 30 V
white/green	GND	GND	GND	GND
Cable screen ¹	Cable screen ¹	Cable screen ¹	Cable screen ¹	Cable screen ¹

¹ connected with encoder housing

² white for version Sense (T)

ACCESSORIES

Hubshaft with tether flexible	ordering code 1 533 079
Hubshaft with tether rigid	ordering code 1 533 078

Incremental Shaft Encoders Type RI 76 TD

Industrial types Hollow shaft

ORDERING INFORMATION

Type	Model	Number of pulses	Supply voltage	Flange	Protection	Stator coupling	Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RI76	TD High temperature, direct hollow shaft	1...10 000	A DC 5 V ¹ E DC 10-30 V ²	Clamping shaft with D Front clamping ring H Rear clamping ring	1 IP40 4 IP64	O without A flexible N rigid	15...42 metric in mm 50...99 coded by inches 50 = 5/8" 51 = 1 5/8" 52 = 3/4"	R RS 422 + Alarm T RS 422 + Sense K push-pull I push-pull complementary	F TPE cable radial
<p>¹ only with output R, T, ² only with output R, K, I ³ Available with front clamping ring and IP40: 15, 20, 24, 25, 27, 28, 30, 38, 40, 42, 50 (5/8"), 51 (1 5/8") Available with front clamping ring and IP64: 15, 16, 18, 20, 24, 25, 27, 28, 30, 32, 38, 40, 42, 50 (5/8"), 51 (1 5/8"), 52 (3/4") Available with rear clamping ring and IP40: 25, 28, 30, 32, 38, 40, 42 Available with rear clamping ring and IP64: 20, 25, 30, 32, 38, 40, 42</p> <p>Preferably available versions are printed in bold type. Others: please request delivery time</p>									



HENGSTLER

D Inkrementeller Drehgeber RI 76 TD Installationsanleitung

GB Incremental Encoders RI 76 TD Installation instructions

F Codeur incrémental RI 76 TD Instructions d'installation

I Trasduttori incrementali RI 76 TD Istruzioni di installazione

E Transmisores giratorios incrementales RI 76 TD Instrucciones de instalación

Art. No.: 2 533 060
Edition.: 3 290906 MM

HENGSTLER

Hotline +49 (0) 74 24 / 89 - 0

HENGSTLER GmbH
Uhlandstr. 49
D-78554 Aldingen
http://www.hengstler.de
e-mail: info@hengstler.de

D 1. Vorwort
Dieses Anleitung soll Ihnen den Anschluss und die Inbetriebnahme des Drehgebers ermöglichen. Weitere Informationen finden Sie im Drehgeberkatalog bzw. erhalten Sie auf Anfrage oder per Download von unserer Internetseite. www.hengstler.de

GB 1. Preface
These installation instructions are provided for the connection and starting procedure of your shaft encoder. You will get further information from the Acuro datasheet, on request or on download from our Internet site. www.hengstler.de

F 1. Avant-propos
Ces instructions ont pour but de vous permettre la mise en route du capteur angulaire. Vous trouverez de plus amples informations dans la fiche technique ou sur simple demande ou par téléchargement à partir de notre site Internet. www.hengstler.de

I 1. Introduzione
Questo manuale d'installazione ha il compito di darle la possibilità di allacciare e mettere in funzione i trasduttori. Ulteriori informazioni riceve del foglio caratteristiche o a richiesta o servitvi di download nel nostro sito internet. www.hengstler.de

E 1. Práambulo
Este manual de instalación le permite la conexión y puest en marcha de los transmisores giratorios. Encontrará mayor información en el hoja de especificaciones o obtendrá esta en ruego, o bien, solicítela directamente a nuestra empresa. www.hengstler.de

D 2. Sicherheitshinweise
Befugte Personen
Der Drehgeber darf nur von einer Elektrofachkraft montiert und demontiert werden, da im Drehgeber empfindliche elektronische Schaltkreise enthalten sind.

Verletzungsgefahr durch rotierende Wellen
Haare und Kleidungsstücke können von rotierenden Wellen erfasst werden. Vor allen Arbeiten alle Betriebsspannungen ausschalten und Arbeitsumgebung sichern!

Zerstörungsgefahr durch Körper elektrizität
Die CMOS-Bausteine im Drehgeber sind sehr empfindlich gegen hohe Spannungen, wie sie z. B. durch die Reibung der Kleidung entstehen können.

Zerstörungsgefahr durch mechanische Überlastung
Eine starre Befestigung führt zu dauerhafter Überlastung der Lager durch Zwangskräfte. Die Beweglichkeit der Geberwelle niemals einschränken! Zur Befestigung nur die beigelegten Federbleche oder eine geeignete Kupplung verwenden!

Zerstörungsgefahr durch mechanischen Schock
Starke Erschütterungen, z. B. Hammerschläge, können zur Zerstörung der optischen Abtastung und der Kugellager führen.

Zerstörungsgefahr durch Überlastung
Das Gerät darf nur innerhalb der Grenzen betrieben werden, wie sie in den technischen Daten vorgegeben sind.

Anwendungsbereich: Industrielle Prozesse und Steuerungen.
Überspannungen an den Anschlussklemmen müssen auf Werte der Überspannungskategorie II begrenzt werden (SELV). Das Anschlusskabel ist nicht schleppfähig und nur für feste Verlegung geeignet.

Dieser Geber ist ein Zulieferteil, das für den Einbau in ein Gerät (Motor, Maschine) vorgesehen ist. Er ist nicht für den Verkauf an den Endkunden bestimmt.

Der Hersteller, der diesen Geber in sein Gerät integriert, ist verantwortlich für die Einhaltung der CE-Richtlinien und die CE-Kennzeichnung.

GB 2. Safety

Authorised persons
The encoder should only be assembled and dismantled by a qualified electrician, as the unit contains sensitive electronic circuits.

Risk of injury due to rotating shafts
Hair and items of clothing may become caught up in rotating shafts. Prior to commencing all works, disconnect all power supplies and ensure that the working environment is safe!

Risk of destruction due to static electricity
The CMOS modules contained in the encoder are very sensitive to high voltages such as can arise due to friction of the clothing. Do not touch plug contacts or electronic components!

Risk of destruction due to mechanical overload
Rigid mounting will give rise to constraining forces which will permanently overload the bearings. Never restrict the freedom of movement of the encoder! Use only the enclosed sheet steel springs or a suitable coupling to secure the unit!

Risk of destruction due to mechanical shock
Violent shocks, e.g. due to hammer blows, can lead to the destruction of the optical sensing system and the ball bearings. Never use force! Assembly is simple provided that correct procedure is followed.

Risk of destruction due to overloading
The unit may only be operated within the limits specified in the technical data.

Fields of application: industrial processes and controls.
Over voltage at the connecting terminals must be limited to over voltage-class-II values (SELV). The connecting cable is not for dragline mounting, only for fix mounting.

This encoder is a supply part destined for mounting to an appliance (motor, machine). It is not provided for customer sale. Manufacturers integrating this encoder to their facilities are responsible as well for compliance with CE guidelines as for the CE mark.

I 2. Avvertenze sulla Sicurezza

Persone autorizzate
Il trasduttore di rotazione può essere montato e smontato solo da un elettricista specializzato, poiché il trasduttore di rotazione è dotato di circuiti elettronici sensibili.

Pericolo di lesioni dovute ad alberi in rotazione
I capelli e gli indumenti possono impigliarsi negli alberi in rotazione. Prima di eseguire qualsiasi lavoro disinserire tutte le tensioni d'esercizio e proteggere la zona di lavoro!

Pericolo di distruzione dovuta all'elettricità formatasi nel corpo
I componenti CMOS del trasduttore di rotazione sono molto sensibili alle alte tensioni come quelle che possono formarsi in seguito allo strofinio degli indumenti. Non toccare i connettori a spina ed i componenti elettronici!

Pericolo di distruzione dovuta a sovraccarico meccanico
Un fissaggio troppo rigido provoca un sovraccarico permanente dei cuscinetti per via delle forze ad azione forzata. Non limitare mai la mobilità dell'albero del trasduttore! Per il fissaggio utilizzare solo le lamiere elastiche in dotazione oppure un giunto adeguato!

Pericolo di distruzione dovuta a shock meccanico
Forti urti, ad esempio i colpi di martello, possono causare la distruzione del sistema di scansione ottica e dei cuscinetti a sfera. Non usare violenza! Lavorando appropriatamente si può unire tutto più leggeremente.

Pericolo di distruzione dovuta a sovraccarico.
Pericolo di distruzione dovuta a sovraccarico. Fare funzionare l'apparecchio entro i limiti che sono stati specificati nelle caratteristiche tecniche.

Campo d'impiego: processi industriali e dispositivi di comando.
Le sovratensioni sui morsetti devono essere limitate ai valori della categoria di sovratensione II (SELV). Questo trasduttore è un elemento complementare destinato al montaggio in un apparecchio (motore, macchina), e non può essere venduto al cliente finale.

Il produttore che incorpora questo trasduttore nel suo apparecchio è tenuto a far rispettare le direttive CE e a farlo contrassegnare col marchio CE.

F 2. Sécurité

Personnel autorisé
Du fait que le codeur renferme des circuits électroniques sensibles, seul le personnel compétent est autorisé à monter ou démonter le codeur.

Mise en garde contre les arbres en rotation
Les cheveux et les vêtements peuvent être happés par les arbres en rotation. Prière de sécuriser l'environnement de travail avant de mettre les machines en service.

Risque de destruction par des décharges électrostatiques
Les composants CMOS contenus dans le codeur sont très sensibles aux décharges électrostatiques provoquées par exemple par le frottement de certains vêtements. Ne pas toucher aux contacts enfichables ni aux composants électroniques.

Risque de destruction par des surcharges mécaniques
Une fixation rigide conduit à une contrainte permanente sur les paliers due aux forces de réaction. Ne jamais entraver le mouvement de l'arbre du codeur. Pour la fixation, utiliser uniquement les tôles élastiques à ressorts livrées avec le codeur ou un accouplement adéquat.

Risque de destruction par des chocs mécaniques
De fortes vibrations ou des chocs, par ex. des coups de marteau, peuvent provoquer la destruction du système optique de balayage du codeur et des roulements à billes. Ne jamais forcer. Un montage correct permet un assemblage facile des éléments.

Risque de destruction par surcharge
Mettre l'appareil en œuvre uniquement dans les limites prescrites sur les notices techniques.

Domaine d'application : commandes et processus industriels.
Les surtensions sur les bornes de raccordement doivent être limitées aux valeurs de la catégorie II concernant les surtensions (SELV). Ce codeur correspond à une fourniture prévue pour être intégrée dans un appareil (moteur, partie mécanique). Il n'est pas destiné à la vente directe au client final.

Le constructeur intégrant ce codeur dans son équipement est tenu de respecter les directives CE ainsi que le marquage CE.

E 2. Seguridad

Persona autorizada
Dado que el codificador rotatorio contiene circuitos electrónicos sensibles, únicamente un electricista especializado está autorizado a montarlo y a desmontarlo.

Peligro de lesión mediante ejes en rotación
Los cabellos y las prendas de vestir pueden ser arrastrados por los ejes en rotación. ¡Antes de comenzar cualquier trabajo, desconecte todas las tensiones de alimentación y asegure el entorno de trabajo!

Peligro de destrucción por electricidad electrostática
Los componentes de CMOS del codificador rotatorio son muy sensibles a las altas tensiones, que se producen p.ej. por el frotamiento de la ropa. ¡No toque los contactos enchufables y componentes electrónicos!

Peligro de destrucción por sobrecarga mecánica
Un soporte rígido produce una sobrecarga permanente de los cojinetes ocasionada por las fuerzas de ligadura. ¡No limite nunca la libertad de movimiento del eje del codificador! ¡Para fijarlo, utilice únicamente las chapas elásticas adjuntadas o un dispositivo de acoplamiento adecuado!

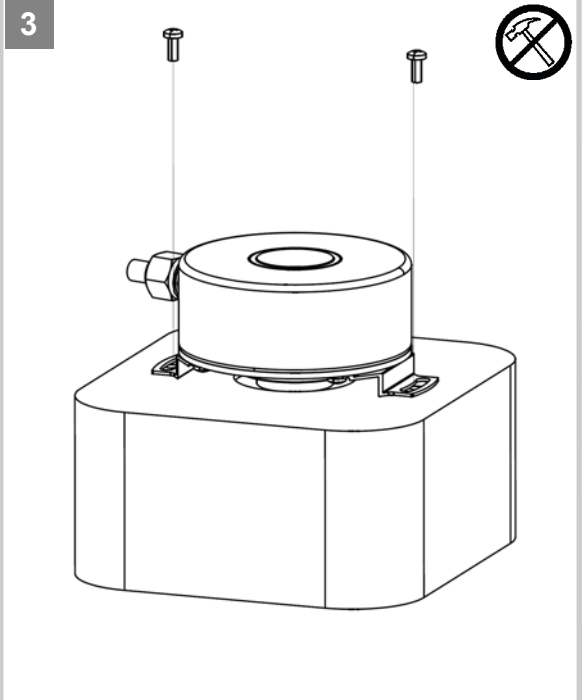
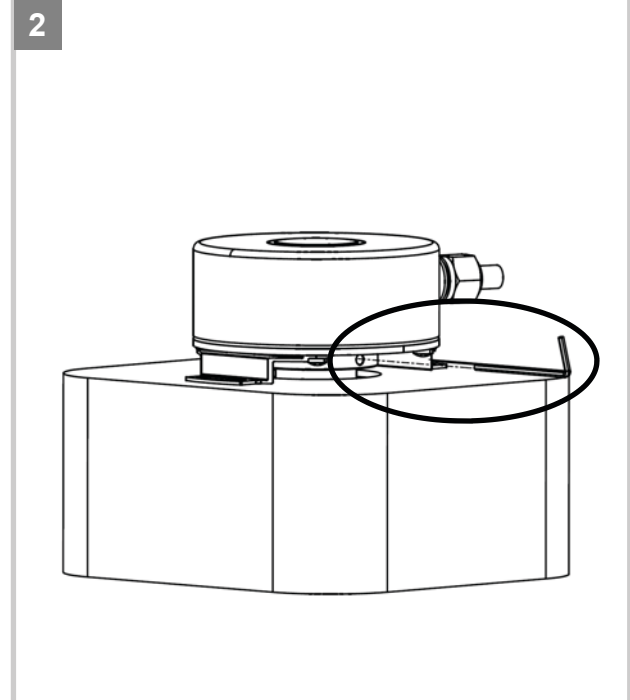
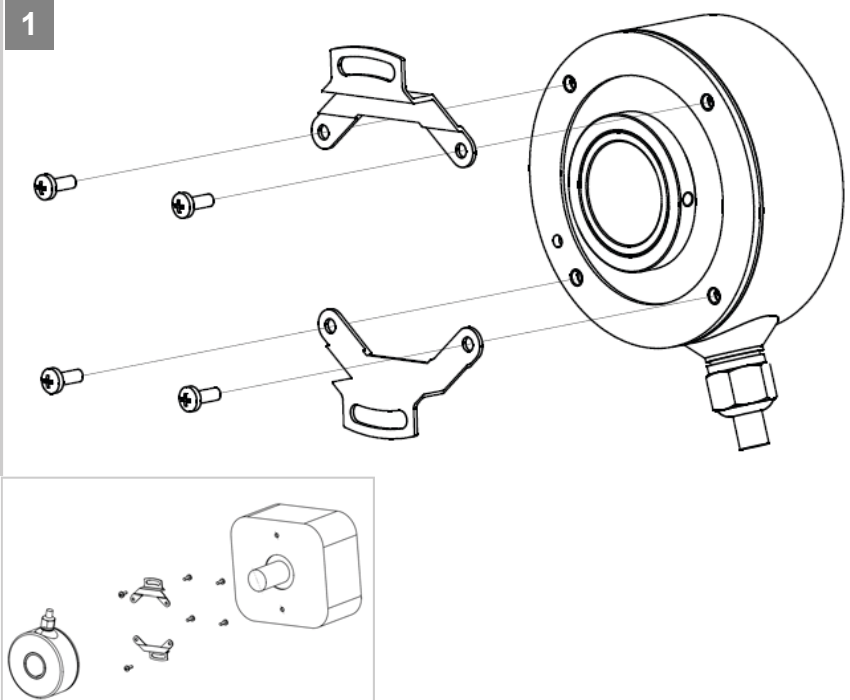
Peligro de destrucción por choque mecánico
Las vibraciones fuertes, p.ej. las que se producen por los golpes de un martillo, pueden destruir el dispositivo de exploración óptica y los rodamientos de bolas. ¡No recurra nunca a la violencia! El montaje es sencillo, siempre y cuando se sigan los pasos correctos.

Peligro de destrucción por sobrecarga
No está permitido utilizar el aparato fuera de los límites prescritos en la hoja de datos técnicos.

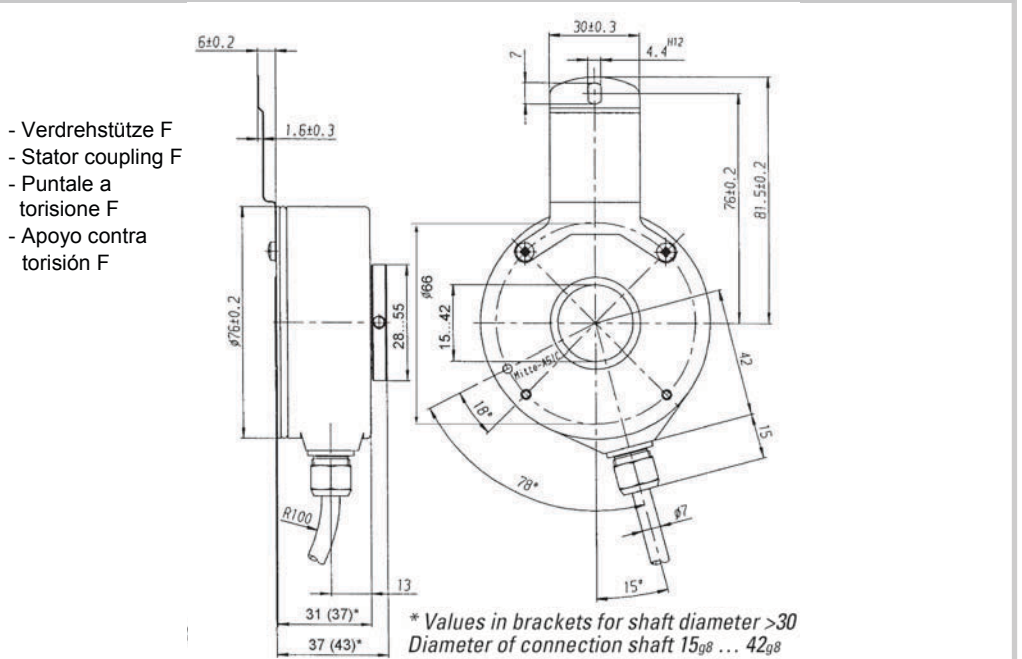
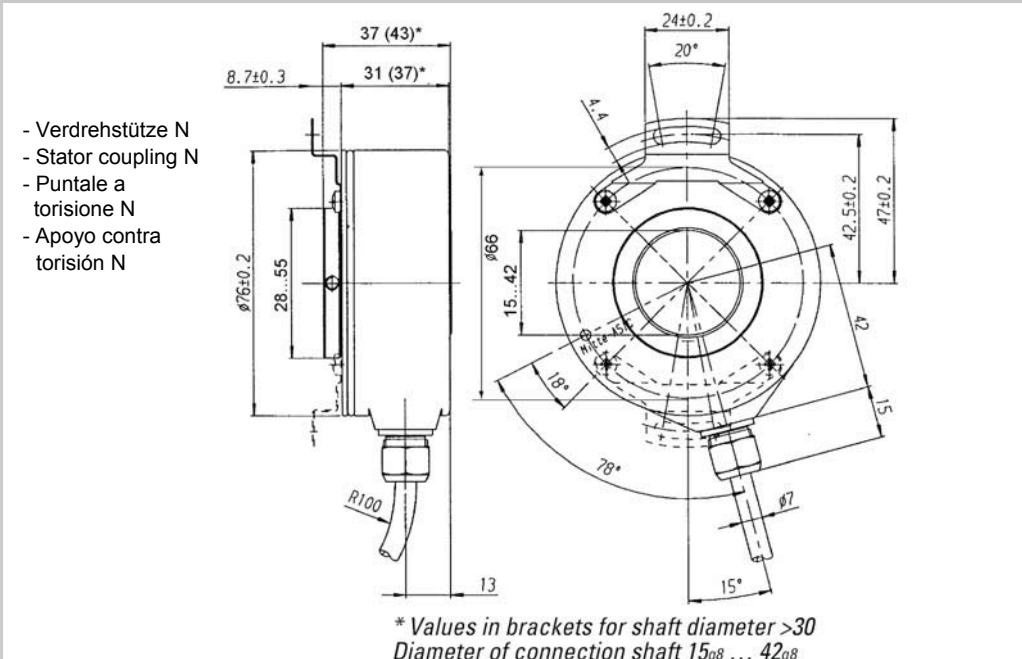
Campo de aplicación: Procesos industriales y unidades de mando.
Es imprescindible limitar las sobretensiones en los bornes de conexión a los valores correspondientes a la categoría de sobretensión II (SELV). Este codificador forma parte del suministro y está destinado a la instalación en un aparato (motor, máquina). No está previsto para la venta al cliente.

Todo fabricante, que integre este codificador en uno de sus aparatos, se responsabiliza por el cumplimiento de la normativa CE y de la marca CE.

3. Montage • Assembly • Montage • Montaggio • Montaje



4. Maßzeichnung • Dimensioned Drawings • Schema d'encombrement • Dimensioni • Plano acotado



- Verdrehstütze N
- Stator coupling N
- Puntale a torisione N
- Apoyo contra torisión N

- Verdrehstütze F
- Stator coupling F
- Puntale a torisione F
- Apoyo contra torisión F

* Values in brackets for shaft diameter >30
Diameter of connection shaft 15g8 ... 42g8

* Values in brackets for shaft diameter >30
Diameter of connection shaft 15g8 ... 42g8

5. Kürzel
Codes • Abréviation
Abbreviatura • Abreviatura

5.1 Farbkürzel für Kabel
Colour code for cable • Abréviation de couleur de câble
Abbreviatura per cavi • Abreviatura de color para cable

ID	D	GB	F	I	E
bl	blau	blue	bleu	blu	azul
br	braun	brown	brun	marrone	marrón
ge	gelb	yellow	jaune	giallo	amarillo
gn	grün	green	vert	verde	verde
gr	grau	grey	gris	grigio	gris
rs	rosa	pink	rose	rosa	rosa
rt	rot	red	rouge	rosso	rojo
sw	schwarz	black	noir	nero	negro
vi	violett	violet	violet	viola	violeta
ws	weiß	white	blanc	bianco	blanco

5.2 Kürzel für Ausgangsschaltung
Code for output • Abréviation de étage de sortie
Abbreviatura per uscita • Abreviatura de salida

ID	D	GB	F	I	E
R	RS 422 + Alarm	RS 422 + Alarm	RS 422 + alarme	RS 422 + Allarme	RS 422 + Alarma
T	RS 422 + Sense	RS 422 + Sense	RS 422 + sense	RS 422 + Sonda	RS 422 + Sense
K	Gegentakt	push-pull	HTL	push-pull	contrafase
I	Gegentakt antivalent	push-pull complementary	HTL complementaire	push-pull antivalente	contrafase antivalente

6. Mechanische Daten
Mechanical data • Caractéristiques mécaniques
Dati meccanici • Datos mecánicos

- Max. Wellenversatz
- Max. shaft misalignment
- Mesalignement maxi. de l'axe
- Schermatura albero mass.
- Desalineacion de eje max.

Tether A: axial: ± 0,5 mm radial: ± 0,05 mm
Tether N (1x): axial: ± 0,5 mm radial: ± 0,3 mm
Tether N (2x): axial: ± 0,3 mm radial: ± 0,2 mm

IP 64; 70°C; ø15...25: 3600 min⁻¹
IP 64; 70°C; ø25...42: 1800 min⁻¹
IP 40; 70°C; ø15...25: 6000 min⁻¹
IP 40, 100°C; ø15...42: 1800 min⁻¹

Betrieb • Operation • De fonctionnement • Esercizio • Servicio
-25 ... +100 °C

- Wellenbefestigung
- Shaft fixing
- Arbre fixation
- Albero fissazione
- Eje fijación

7. Elektrische Daten
Electrical data • Caractéristiques électriques
Dati elettrici • Datos eléctricos

	R	T	K, I
Versorgungsspannung • Power supply • Alimentation • Tensione d'alimentazione • Tension de alimentacion	DC 5V±10% or DC 10...30V	DC 5V±10%	DC 10...30V
I _{max} =	max. 60 mA (DC 5V), 60 mA (DC 10V), 35 mA (DC 24V)		

ESD

8. Anschlussbilder
Connection diagrams • Symboles de raccordement
Denominazione collegamento • Denominación de los cables

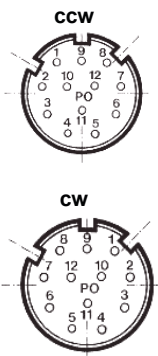
8.1 Kabel • Cable • Câble • Cavo • Cable

Farbe • Colour • Couleur • Cavi • Color	Ausgangsschaltung • Output • Etage de sortie • Uscita • Salida			
	R	K	I	T
br	Channel A	Channel A	Channel A	Channel A
gn	Channel \bar{A}		Channel \bar{A}	Channel \bar{A}
gr	Channel B	Channel B	Channel B	Channel B
rs	Channel \bar{B}		Channel \bar{B}	Channel \bar{B}
rt	Channel N	Channel N	Channel N	Channel N
sw	Channel \bar{N}		Channel \bar{N}	Channel \bar{N}
vi	Alarm	Alarm	Alarm	Sense GND
ws	Alarm	Alarm	Alarm	Sense GND
bl	Sense V _{cc}		Sense V _{cc}	Sense V _{cc}
br/ gn	DC 5 ¹ /10 - 30 V	DC 10 - 30 V	DC 10 - 30 V	DC 5 ¹ V
ws/ gn	GND	GND	GND	GND

2) Kabelschirm • Screen • Blindage câble • Schermo • Blindaje

8.2 Connector M23, 12 Pole

PIN	RS 422 + Sense (T)	RS 422 + Alarm (R)	push-pull (K)	push-pull complementary (I)
1	Channel \bar{B}	Channel \bar{B}	N.C.	Channel \bar{B}
2	Sense V _{cc}	Sense V _{cc}	N.C.	Sense V _{cc}
3	Channel N	Channel N	Channel N	Channel N
4	Channel \bar{N}	Channel \bar{N}	N.C.	Channel \bar{N}
5	Channel A	Channel A	Channel A	Channel A
6	Channel \bar{A}	Channel \bar{A}	N.C.	Channel \bar{A}
7	N.C.	Alarm	Alarm	Alarm
8	Channel B	Channel B	Channel B	Channel B
9	N.C.	N.C.	N.C.	N.C.
10	GND	GND	GND	GND
11	Sense GND	N.C.	N.C.	N.C.
12	DC 5 V	DC 5 V/10-30 V	DC 10-30 V	DC 10-30 V



1) **Achtung:** Bitte beachten sie, dass bei 5V Versorgungsspannung in Verbindung mit langen Kabeln ein Spannungsabfall entsteht.
Attention: Please note that with 5V power supply and long cables a fall of voltage will emerge.

2) Mit dem Gebergehäuse verbunden
Connected to encoder housing
Raccorde au boîtier du codeur
Collegato all'involucro del trasduttore
Conectado a la carcasa del transmisor

9. Identifikationscode
Ordering data • Code d'identification
Chiave per l'ordinazione • Código de pedido

9.1 Deutsch

Typ	Ausführung	Auflösung	Versorgung	Flansch	Schutzart	Verdreh-	Welle	Ausgang	Anschluss
RI76	TD Hochtemperatur, direkte Hohlwelle	1...10 000 Striche	A DC 5V E DC 5-30V	Klemmwelle mit D Klemmring vorn H Klemmring hinten	1 IP 40 4 IP 64	O Ohne A Flexibel N Drehsteif	15...42 metrisch in mm 50...99 in Zoll codiert 50 = 5/8" 51 = 1 5/8" 52 = 3/4"	R RS422 + Alarm T RS422 + Sense K Gegentakt I Gegentakt antivalent	F TPE-Kabel radial

9.2 English

Type	Model	Number of pulses	Supply voltage	Flange	Protection	Stator coupling	Shaft	Output	Connection
RI76	TD High-temperature, direct hollow shaft	1...10 000	A DC 5V E DC 5-30V	Clamping shaft with D Front clamping ring H Rear clamping ring	1 IP 40 4 IP 64	O without A flexible N rigid	15...42 metric in mm 50...99 Coded by inches 50 = 5/8" 51 = 1 5/8" 52 = 3/4"	R RS422 + Alarm T RS422 + Sense K push-pull I push-pull complementary	F TPE cable radial

9.3 Italiano

Tipo	Modello	Numeri impulsi	Tensione d'alimentazione	Fissaggio dell'albero	Tipo di protezione	Puntale a torsione	Diámetro albero	Uscita	Tipo di collegamento
RI76	TD alta-temperatura, Albero cavo diretto	1...10 000	A DC 5V E DC 5-30V	Anello di serraggio D anteriore (flangia) H posteriore (tappo)	1 IP 40 4 IP 64	O nullo A flessibile N resistente alla torsione	15...42 metrico in mm 50...99 cifrato in pollici 50 = 5/8" 51 = 1 5/8" 52 = 3/4"	R RS422 + Allarme T RS422 + Sonda K push-pull I push-pull antivalente D push-pull 5V, 30mA	F cavo TPE radiale

9.4 Español

Tipo	Model	Cantidad de líneas	Tensión de alimentación	Sujeción del eje	Tipo de protección	Apoyo contra torosión	Diámetro del eje	Salida	Tipo de conexión
RI76	T Temperatura 100°C D eje hueco directo	1...10 000	A DC 5V E DC 5-30V	D Anillo opresor delante (acoplamiento) H Anillo opresor detrás (tapón)	1 IP 40 4 IP 64	O Ningún A Flexible N rígido a la torsión	15...42 metrico en mm 50...99 cifrado en pulgadas 50 = 5/8" 51 = 1 5/8" 52 = 3/4"	R RS422 + Alarma T RS422 + Sense K Contrafase I Contrafase antivalente D Contrafase	F TPE-cable radial

PRELIMINARY



GENERAL INFORMATION

NUMBER OF PULSES

TECHNICAL DATA mechanical

TECHNICAL DATA electrical

Incremental Shaft Encoders Type RI 80-E Industrial types Hollow shaft

- Incremental Output
- 30...45 mm hollow shaft
- Rugged mechanical design
- Unbreakable disc
- Integrated diagnostic system
- Wide voltage range DC 5 ... 30 V

The central element of the RI80-E is the latest Hengstler OptoAsic technology, which offers the following key benefits:

- Highest EMC immunity
- Outstanding reliability by reduced number of components and integrated diagnostics system
- Aging compensation by integrated LED light regulation
- Integrated monitoring of pollution, disk damage, LED lifetime, temperature

A robust and generously dimensioned mechanical design ensures long maintenance free operation.

The RI80-E is ideally suited for applications like:

- Geared Elevators
- Asynchronous Motors
- Industrial Machinery

1024 / 2048 / 4096

Other number of pulses on request

Shaft fixation	Keyway, set screw
Coupling	Spring tether (single, double)
Protection	IP50, IP64
Max. Speed	3 600 min ⁻¹ (IP50) 1 500 min ⁻¹ (IP64)
Moment of inertia	240 kgmm ²
Max. parallel shaft misalignment	axial: ± 0.5 mm radial: ± 0.05 mm
Operating temperature	-20 ...+70°C
Storage temperature	-40 ...+70°C
Material housing	Glass fiber-reinforced plastic/ aluminum
Weight	1000 g

General design	As per DIN EN 61010, protection class III, Contamination level 2 , over voltage class II
Supply voltage	DC 5V±10% or DC 5 - 30V ¹
Max. current w/o load	max 60mA (DC 5V), 60mA (DC 10V), 35mA (DC 24V)
Standard output versions	With RS 422 (R): A, B, N, \bar{A} , \bar{B} , \bar{N} , Alarm, Sense With push-pull (K): A, B, N, \overline{Alarm} With push-pull (I): A, B, N, \bar{A} , \bar{B} , \bar{N} , \overline{Alarm} , Sense
Connection	Sub-D 15-pole, cable radial

¹ Pole protection with supply voltage DC 5...30 V

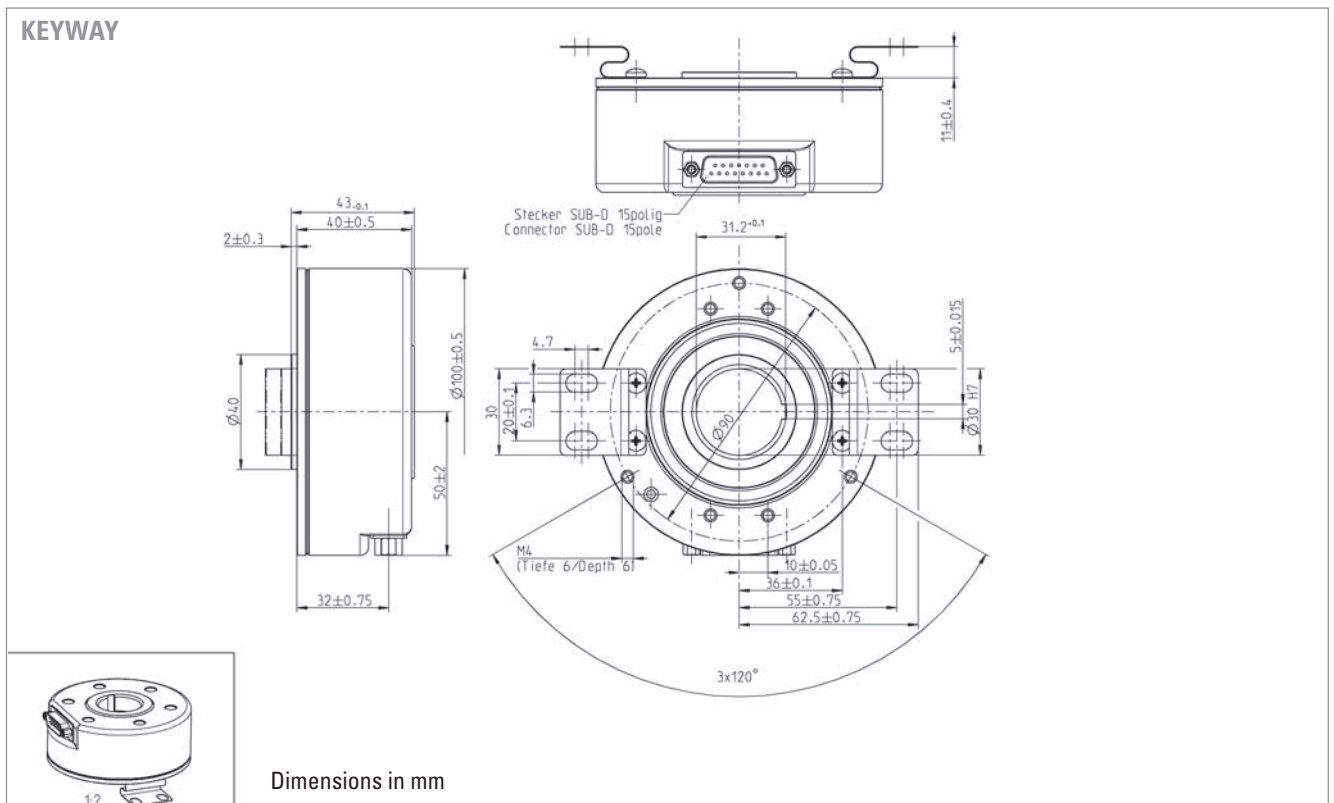
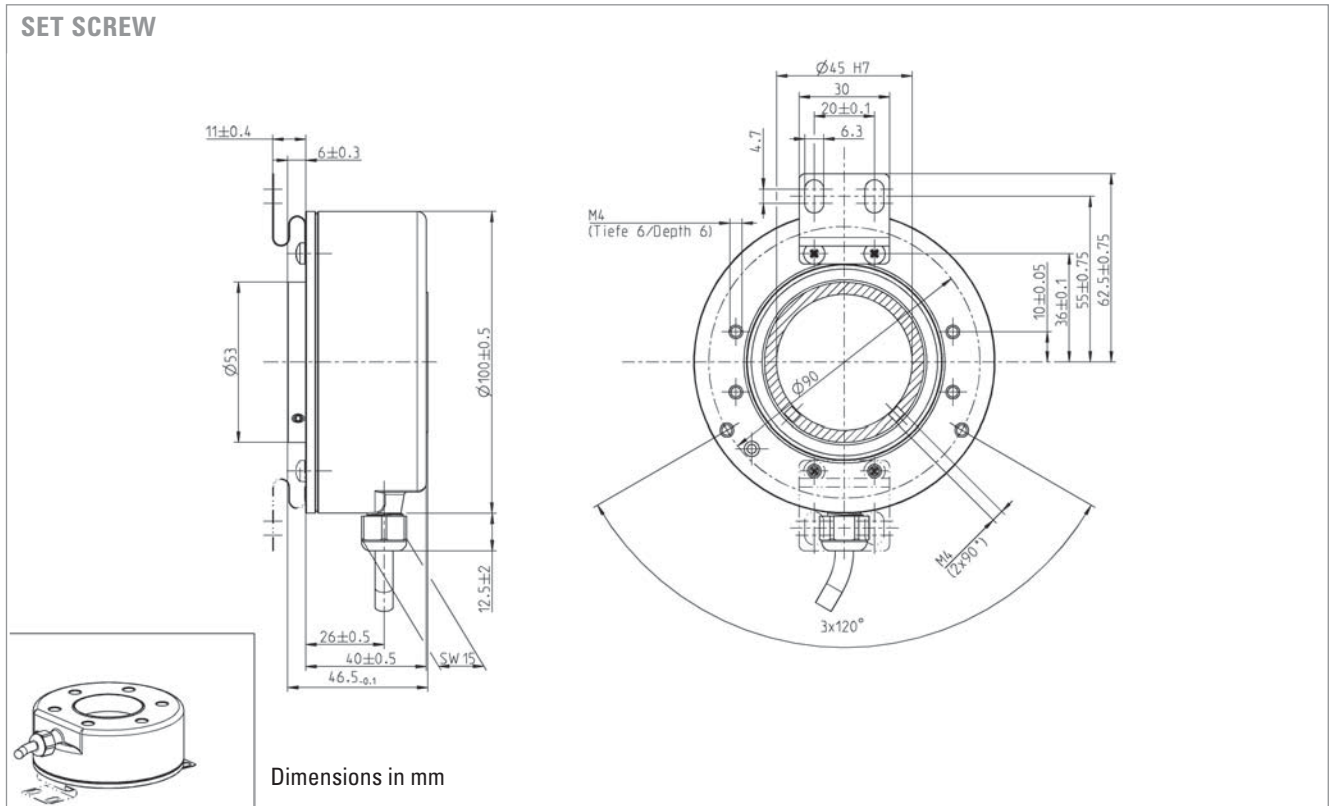
Incremental Shaft Encoders

Industrial types

Type RI80-E

Hollow shaft

DIMENSIONAL DRAWINGS



Incremental Shaft Encoders Type RI 80-E

Industrial types Hollow shaft

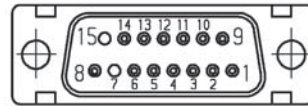
PIN ASSIGNMENT Cable

Color	RS 422 + Alarm + Sense (R)	Push-pull (K)	Push-pull Complement. (I)
brown	Channel A	Channel A	Channel A
green	Channel \bar{A}		Channel \bar{A}
grey	Channel B	Channel B	Channel B
pink	Channel \bar{B}		Channel \bar{B}
red	Channel N	Channel N	Channel N
black	Channel \bar{N}		Channel \bar{N}
violet	Alarm	Alarm	Alarm
white	Sense GND		Sense GND
blue	Sense V_{CC}		Sense V_{CC}
brown/green	DC 5 - 30 V	DC 5 - 30 V	DC 5 - 30 V
white/green	GND	GND	GND
screen ¹	screen ¹	screen ¹	screen ¹

¹ connected with encoder housing

PIN ASSIGNMENT Sub-D 15 pin

Pin	Signal
1	\bar{B}
2	B
3	\bar{A}
4	A
5	GND
6	+Ub
7	n.c.
8	screen
9	\bar{N}
10	N
11	n.c.
12	n.c.
13	n.c.
14	n.c.
15	n.c.



ORDERING INFORMATION

Type	Model	Number of pulses	Supply voltage	Spring tether	Protection	Mounting/shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RI80-	E	1024 2048 4096	A DC 5 V B DC 5 - 30 V	A single B double O without	1 IP50 4 IP64 0 IP40	K30 Keyway/ 30mm G30 Set screw/ 30mm G45 Set screw/ 45mm	R RS422 + Alarm + Sense K Push-pull ¹ I Push-pull complementary ¹	F Cable radial 1.5 m F-F0 Cable radial 5 m F-K0 Cable radial 10 m 4 SUB-D 15

¹ Driver type DL, see < www.ichaus.de >



HENGSTLER

Hotline
+49 (0) 74 24 / 89 - 539

HENGSTLER GmbH
Umlandstr. 49
D-78554 Aldingen
http://www.hengstler.de
e-mail: info@hengstler.de

HENGSTLER

- D** Inkrementeller Drehgeber
RI 80-E
Installationsanleitung
- GB** Incremental Shaft Encoders
RI 80-E
Installation instructions
- F** Codeur incrémental
RI 80-E
Instructions d'installation
- I** Trasduttori incrementali
RI 80-E
Istruzioni di installazione
- E** Transmisores giratorios incrementales
RI 80-E
Instrucciones de instalación

Art. No.: 2 535 017
Edition.: 3 030505 HOR

GB 2. Safety

Authorised persons
The encoder should only be assembled and dismantled by a qualified electrician, as the unit contains sensitive electronic circuits.

Risk of injury due to rotating shafts
Hair and items of clothing may become caught up in rotating shafts.
→ Prior to commencing all works, disconnect all power supplies and ensure that the working environment is safe!

Risk of destruction due to static electricity
The CMOS modules contained in the encoder are very sensitive to high voltages such as can arise due to friction of the clothing.
→ Do not touch plug contacts or electronic components!

Risk of destruction due to mechanical overload
Rigid mounting will give rise to constraining forces which will permanently overload the bearings.
→ Never restrict the freedom of movement of the encoder! Use only the enclosed sheet steel springs or a suitable coupling to secure the unit!

Risk of destruction due to mechanical shock
Violent shocks, e.g. due to hammer blows, can lead to the destruction of the optical sensing system and the ball bearings.
→ Never use force! Assembly is simple provided that correct procedure is followed.

Risk of destruction due to overloading
→ The unit may only be operated within the limits specified in the technical data.

Fields of application: industrial processes and controls.
Over voltage at the connecting terminals must be limited to over voltage-class-II values (SELV).
The connecting cable is not for dragline mounting, only for fix mounting.
This encoder is a supply part destined for mounting to an appliance (motor, machine). It is not provided for customer sale.
Manufacturers integrating this encoder to their facilities are responsible as well for compliance with CE guidelines as for the CE mark.

F 2. Sécurité

Personnel autorisé
Du fait que le codeur renferme des circuits électroniques sensibles, seul le personnel compétent est autorisé à monter ou démonter le codeur.

Mise en garde contre les arbres en rotation
Les cheveux et les vêtements peuvent être happés par les arbres en rotation.
→ Prière de sécuriser l'environnement de travail avant de mettre les machines en service.

Risque de destruction par des décharges électrostatiques
Les composants CMOS contenus dans le codeur sont très sensibles aux décharges électrostatiques provoquées par exemple par le frottement de certains vêtements.
→ Ne pas toucher aux contacts enfichables ni aux composants électroniques.

Risque de destruction par des surcharges mécaniques
Une fixation rigide conduit à une contrainte permanente sur les paliers due aux forces de réaction.
→ Ne jamais entraver le mouvement de l'arbre du codeur. Pour la fixation, utiliser uniquement les tôles élastiques à ressorts livrées avec le codeur ou un accouplement adéquat.

Risque de destruction par des chocs mécaniques
De fortes vibrations ou des chocs, par ex. des coups de marteau, peuvent provoquer la destruction du système optique de balayage du codeur et des roulements à billes.
→ Ne jamais forcer. Un montage correct permet un assemblage facile des éléments.

Risque de destruction par surcharge
→ Mettre l'appareil en œuvre uniquement dans les limites prescrites sur les notices techniques.

Domaine d'application : commandes et processus industriels.
Les surtensions sur les bornes de raccordement doivent être limitées aux valeurs de la catégorie II concernant les surtensions (SELV).
Ce codeur correspond à une fourniture prévue pour être intégrée dans un appareil (moteur, partie mécanique). Il n'est pas destiné à la vente directe au client final.
Le constructeur intégrant ce codeur dans son équipement est tenu de respecter les directives CE ainsi que le marquage CE.

D 1. Vorwort

Dieses Anleitung soll Ihnen den Anschluss und die Inbetriebnahme des Drehgebers ermöglichen.
Weitere Informationen finden Sie im Drehgeberkatalog bzw. erhalten Sie auf Anfrage oder per Download von unserer Internetseite.
www.hengstler.de

GB 1. Preface

These installation instructions are provided for the connection and starting procedure of your shaft encoder.
You will get further information from the Acuro datasheet, on request or on download from our Internet site.
www.hengstler.de

F 1. Avant-propos

Ces instructions ont pour but de vous permettre la mise en route du capteur angulaire.
Vous trouverez de plus amples informations dans la fiche technique ou sur simple demande ou par téléchargement à partir de notre site Internet.
www.hengstler.de

I 1. Introduzione

Questo manuale d'installazione ha il compito di darle la possibilità di allacciare e mettere in funzione i trasduttori.
Ulteriori informazioni riceve dal foglio caratteristiche o a richiesta o servitvi di download nel nostro sito internet.
www.hengstler.de

E 1. Prólogo

Este manual de instalación le permite la conexión y puest en marcha de los transmisores giratorios.
Encontrará mayor información en el hoja de especificaciones o obtendrá esta en ruego, o bien, solicítela directamente a nuestra empresa.
www.hengstler.de

D 2. Sicherheitshinweise

Befugte Personen
Der Drehgeber darf nur von einer Elektrofachkraft montiert und demontiert werden, da im Drehgeber empfindliche elektronische Schaltkreise enthalten sind.

Verletzungsgefahr durch rotierende Wellen
Haare und Kleidungsstücke können von rotierenden Wellen erfasst werden.
→ Vor allen Arbeiten alle Betriebsspannungen ausschalten und Arbeitsumgebung sichern!

Zerstörungsgefahr durch Körperelektrizität
Die CMOS-Bausteine im Drehgeber sind sehr empfindlich gegen hohe Spannungen, wie sie z. B. durch die Reibung der Kleidung entstehen können.
→ Steck-Kontakte und elektronische Komponenten nicht berühren!

Zerstörungsgefahr durch mechanische Überlastung
Eine starke Befestigung führt zu dauerhafter Überlastung der Lager durch Zwangskräfte.
→ Die Beweglichkeit der Geberwelle niemals einschränken! Zur Befestigung nur die beigelegten Federbleche oder eine geeignete Kupplung verwenden!

Zerstörungsgefahr durch mechanischen Schock
Starke Erschütterungen, z. B. Hammerschläge, können zur Zerstörung der optischen Abtastung und der Kugellager führen.
→ Niemals Gewalt anwenden! Bei sachgemäßer Montage lässt sich alles leichtgängig zusammenfügen.

Zerstörungsgefahr durch Überlastung
Das Gerät darf nur innerhalb der Grenzen betrieben werden, wie sie in den technischen Daten vorgegeben sind.

Anwendungsbereich: Industrielle Prozesse und Steuerungen.
Überspannungen an den Anschlussklemmen müssen auf Werte der Überspannungskategorie II begrenzt werden (SELV).
Das Anschlusskabel ist nicht schleppfähig und nur für feste Verlegung geeignet.
Dieser Geber ist ein Zulieferteil, das für den Einbau in ein Gerät (Motor, Maschine) vorgesehen ist. Er ist nicht für den Verkauf an den Endkunde bestimmt.
Der Hersteller, der diesen Geber in sein Gerät integriert, ist verantwortlich für die Einhaltung der CE-Richtlinien und die CE-Kennzeichnung.

I 2. Avvertenze sulla Sicurezza

Persone autorizzate
Il trasduttore di rotazione può essere montato e smontato solo da un elettricista specializzato, poiché il trasduttore di rotazione è dotato di circuiti elettronici sensibili.

Pericolo di lesioni dovute ad alberi in rotazione
I capelli e gli indumenti possono impigliarsi negli alberi in rotazione.
→ Prima di eseguire qualsiasi lavoro disinserire tutte le tensioni d'esercizio e proteggere la zona di lavoro!

Pericolo di distruzione dovuta all'elettricità formatasi nel corpo
I componenti CMOS del trasduttore di rotazione sono molto sensibili alle alte tensioni come quelle che possono formarsi in seguito allo strofinio degli indumenti.
→ Non toccare i connettori a spina ed i componenti elettronici!

Pericolo di distruzione dovuta a sovraccarico meccanico
Un fissaggio troppo rigido provoca un sovraccarico permanente dei cuscinetti per via delle forze ad azione forzata.
→ Non limitare mai la mobilità dell'albero del trasduttore! Per il fissaggio utilizzare solo le lamiere elastiche in dotazione oppure un giunto adeguato!

Pericolo di distruzione dovuta a shock meccanico
Forti urti, ad esempio i colpi di martello, possono causare la distruzione del sistema di scansione ottica e dei cuscinetti a sfera.
→ Non usare violenza! Lavorando appropriatamente si può unire tutto più facilmente.
→ Pericolo di distruzione dovuta a sovraccarico.
Fare funzionare l'apparecchio entro i limiti che sono stati specificati nelle caratteristiche tecniche

Campo d'impiego: processi industriali e dispositivi di comando.
Le sovratensioni sui morsetti devono essere limitate ai valori della categoria di sovratensione II (SELV).
Questo trasduttore è un elemento complementare destinato al montaggio in un apparecchio (motore, macchina), e non può essere venduto al cliente finale.
Il produttore che incorpora questo trasduttore nel suo apparecchio è tenuto a far rispettare le direttive CE e a farlo contrassegnare col marchio CE.

E 2. Seguridad

Persona autorizada
Dado que el codificador rotatorio contiene circuitos electrónicos sensibles, únicamente un electricista especializado está autorizado a montarlo y a desmontarlo.

Peligro de lesión mediante ejes en rotación
Los cabellos y las prendas de vestir pueden ser arrastrados por los ejes en rotación.
→ ¡Antes de comenzar cualquier trabajo, desconecte todas las tensiones de alimentación y asegure el entorno de trabajo!

Peligro de destrucción por electricidad electrostática
Los componentes de CMOS del codificador rotatorio son muy sensibles a las altas tensiones, que se producen p.ej. por el frotamiento de la ropa.
→ ¡No toque los contactos enchufables y componentes electrónicos!

Peligro de destrucción por sobrecarga mecánica
Un soporte rígido produce una sobrecarga permanente de los cojinetes ocasionada por las fuerzas de ligadura.
→ ¡No limite nunca la libertad de movimiento del eje del codificador! ¡Para fijarlo, utilice únicamente las chapas elásticas adjuntadas o un dispositivo de acoplamiento adecuado!

Peligro de destrucción por choque mecánico
Las vibraciones fuertes, p.ej. las que se producen por los golpes de un martillo, pueden destruir el dispositivo de exploración óptica y los rodamientos de bolas.
→ ¡No recurra nunca a la violencia! El montaje es sencillo, siempre y cuando se sigan los pasos correctos.

Peligro de destrucción por sobrecarga
→ No está permitido utilizar el aparato fuera de los límites prescritos en la hoja de datos técnicos.

Campo de aplicación: Procesos industriales y unidades de mando.
Es imprescindible limitar las sobretensiones en los bornes de conexión a los valores correspondientes a la categoría de sobretensión II (SELV).
Este codificador forma parte del suministro y está destinado a la instalación en un aparato (motor, máquina). No está previsto para la venta al cliente.
Todo fabricante, que integre este codificador en uno de sus aparatos, se responsabiliza por el cumplimiento de la normativa CE y de la marca CE.

3. Montage • Assembly • Montage • Montaggio • Montaje

A Keilnut • Keyway • Rainure • Scanalatura di riferimento • Chavetero

(A)
• Federblech
• Spring plate
• Tôle élastique à ressorts
• Lamiera elastica
• Chapa para láminas de contacto

(B)
• Keilnut
• Keyway
• Rainure
• Scanalatura di riferimento
• Chavetero

(C)
• Passfeder (z.B. 5 x 28 x 3 mm) *
• Fit-in key (e.g. 5 x 28 x 3 mm) *
• Ressort d'ajustage (p.e. 5 x 28 x 3 mm) *
• Chiavetta di adattamento (p.e. 5 x 28 x 3 mm) *
• Chaveta de ajuste (p.e. 5 x 28 x 3 mm) *

(*)
• Nicht enthalten
• Not included
• Non compris
• Non comprese
• No incluido

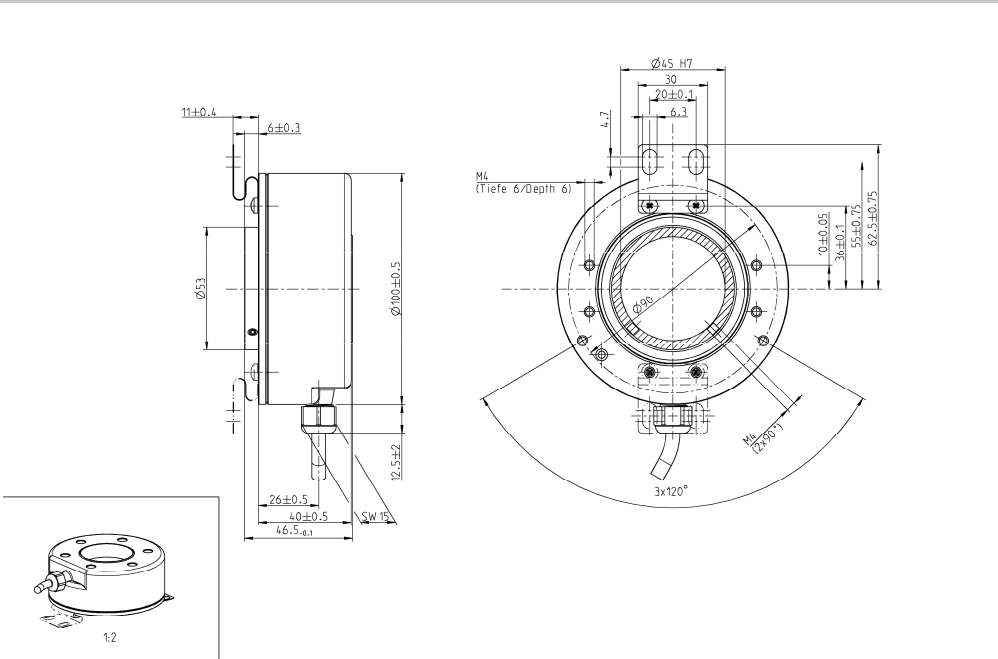
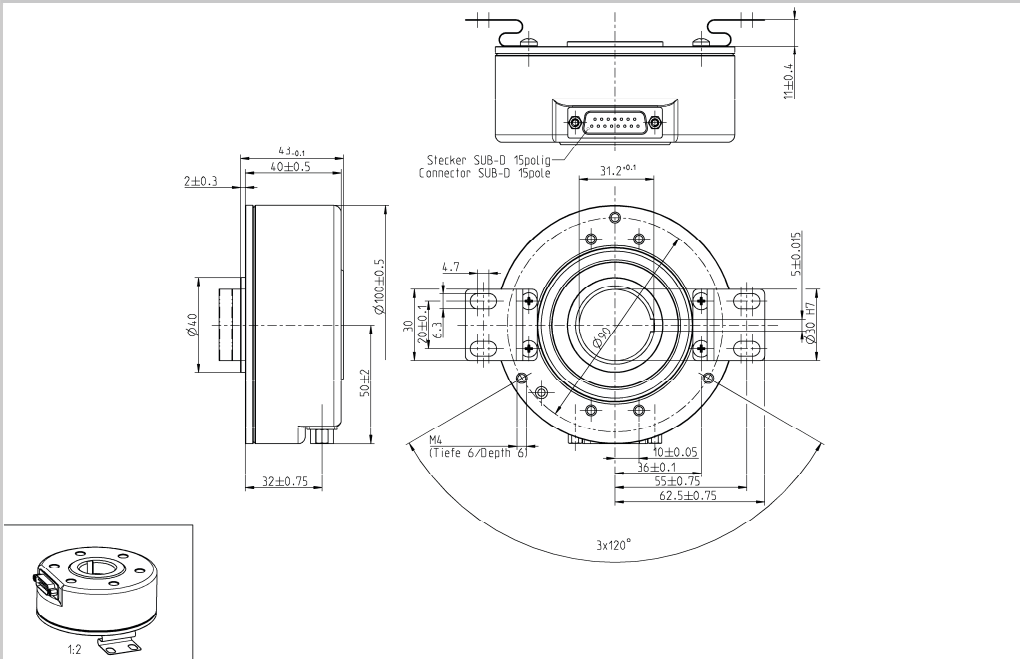
B Gewindestchiff • Set screw • Tige filetée • Vite di fissaggio • Espiga roscada

(A)
• Federblech
• Spring plate
• Tôle élastique à ressorts
• Lamiera elastica
• Chapa para láminas de contacto

(B)
• Innensechskant *
• Hexagon socket *
• Cle a 6 pans *
• Bussola interna esagonale *
• Hexagono *

(*)
• Nicht enthalten
• Not included
• Non compris
• Non comprese
• No incluido

4. Maßzeichnung • Dimensioned Drawings • Schema d'encombrement • Dimensioni • Plano acotado



5. Kürzel
Codes • Abréviation
Abbreviature • Abreviatura

5.1 Farbkürzel für Kabel
Colour code for cable • Abréviation de couleur de câble
Abbreviature per cavi • Abreviatura de color para cable

ID	D	GB	F	I	E
bl	blau	blue	bleu	blu	azul
br	braun	brown	brun	marrone	marrón
ge	gelb	yellow	jaune	giallo	amarillo
gn	grün	green	vert	verde	verde
gr	grau	grey	gris	grigio	gris
rs	rosa	pink	rose	rosa	rosa
rt	rot	red	rouge	rosso	rojo
sw	schwarz	black	noir	nero	negro
vi	violett	violett	violet	viola	violeta
ws	weiß	white	blanc	bianco	blanco


5.2 Kürzel für Ausgangsschaltung
Code for output • Abréviation de étage de sortie
Abbreviature per uscita • Abreviatura de salida

ID	D	GB	F	I	E
R	RS 422 + Alarm	RS 422 + Alarm	RS 422 + alarme	RS 422 + Allarme	RS 422 + Alarma
T	RS 422 + Sense	RS 422 + Sense	RS 422 + sense	RS 422 + Sonda	RS 422 + Sense
K	HTL	push-pull	HTL	push-pull	contrafase
I	HTL komplementär	push-pull complementaire	HTL complémentaire	push-pull antivalente	contrafase antivalente


6. Mechanische Daten
Mechanical data • Caractéristiques mécaniques
Dati meccanici • Datos mecánicos

- Max. Wellenversatz
- Max. shaft misalignment
- Misalignement maxi. de l'axe
- Schermatura albero mass.
- Desalineacion de eje max.

axial: ± 0,5 mm
radial: ± 0,05 mm




IP 50 = 3 600 min⁻¹
IP 64 = 1 500 min⁻¹



- Betrieb
- Operation
- De fonctionnement
- Esercizio
- Servicio

- 25 ... + 70 °C

7. Elektrische Daten
Electrical data • Caractéristiques électriques
Dati elettrici • Datos eléctricos

	R	T	K, I
Versorgungsspannung Power supply Alimentation Tensione d'alimentazione Tension de alimentacion	DC 5V±10% or DC 5...30V	DC 5V±10% or DC 5...30V	DC 5V±10% or DC 5...30V
I _{max} (only Encoder) =	max. 60 mA (DC 5V), 60 mA (DC 10V), 35 mA (DC 24V)		
I _{max} (incl. Output) = Fuse	120 mA for DC 5 V	120 mA for DC 5 V	300 mA for DC 5 V
ESD			

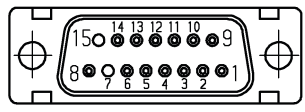
8. Anschlussbilder
Connection diagrams • Symboles de raccordement
Denominazione collegamento • Denominación de los cables

8.1 Kabel • Cable • Câble • Cavo • Cable

	Ausgangsschaltung • Output • Etage de sortie • Uscita • Salida			
Farbe • Colour • Couleur • Cavi • Color	R	K	I	T
br	Channel A	Channel A	Channel A	Channel A
gn	Channel \bar{A}		Channel \bar{A}	Channel \bar{A}
gr	Channel B	Channel B	Channel B	Channel B
rs	Channel \bar{B}		Channel \bar{B}	Channel \bar{B}
rt	Channel N	Channel N	Channel N	Channel N
sw	Channel \bar{N}		Channel \bar{N}	Channel \bar{N}
vi or ws ¹⁾	Alarm	Alarm	Alarm	Sense GND
bl	Sense V _{cc}		Sense V _{cc}	Sense V _{cc}
br/ gn ²⁾	DC 5 - 30 V	DC 5 ²⁾ - 30 V	DC 5 ²⁾ - 30 V	DC 5 - 30 V ²⁾
ws/ gn	GND	GND	GND	GND
³⁾ Kabelschirm • Screen • Blindage câble • Schermo • Blindaje	³⁾ Kabelschirm • Screen • Blindage câble • Schermo • Blindaje	³⁾ Kabelschirm • Screen • Blindage câble • Schermo • Blindaje	³⁾ Kabelschirm • Screen • Blindage câble • Schermo • Blindaje	³⁾ Kabelschirm • Screen • Blindage câble • Schermo • Blindaje

8.2 SUB-D 15 pin

PIN	Signal
1	\bar{B}
2	B
3	\bar{A}
4	A
5	GND
6	+Ub
7	n.c. ⁴⁾
8	Kabelschirm • Screen • Blindage câble • Schermo • Blindaje
9	\bar{N}
10	N
11	n.c. ⁴⁾
12	n.c. ⁴⁾
13	n.c. ⁴⁾
14	n.c. ⁴⁾
15	n.c. ⁴⁾



- 1) Weißes Kabel nur in Verbindung mit RS 422 + Sense (T)
White cable only with RS 422 + Sense
- 2) **Achtung:** Bitte beachten sie, dass bei 5V Versorgungsspannung in Verbindung mit langen Kabeln ein Spannungsabfall entsteht.
Attention: Please note that with 5V power supply and long cables a fall of voltage will emerge.
- 3) Mit dem Gebergehäuse verbunden
Connected to encoder housing
Raccorde au boîtier du codeur
Collegato all'involucro del trasduttore
Conectado a la carcasa del transmisor
- 4) Nicht belegt
Not Connected
Libre
Non collegato
Desconectado

9. Identifikationscode
Ordering data • Code d'identification
Chiave per l'ordinazione • Código de pedido

9.1 German

Typ	Ausführung	Auflösung	Versorgung	Federblech	Schutzart	Befestigung/Welle	Ausgang	Anschluss
RI80-	E	1024 Striche 2048 Striche 4096 Striche	A DC 5 V E DC 5-30 V	A Federblech einzeln B Federblech doppelt O ohne	1 IP 50 4 IP 64	K30 Keilnut 30 mm G30 Gewindestift 30 mm G45 Gewindestift 45 mm	R RS422 + Alarm T RS422 + Sense K HTL ³⁾ I HTL komplementär ³⁾	B Kabel radial 1,5 m B-F0 Kabel radial 5 m B-K0 Kabel radial 10 m 4 SUB-D 15 Stecker

³⁾ Treiber Typ DL, siehe < www.ichaus.de >

9.2 English

Type	Model	Resolution	Supply voltage	Spring tether	Protection	Mounting/Shaft	Output	Connection
RI80-	E	1024 No. of pulses 2048 No. of pulses 4096 No. of pulses	A DC 5 V E DC 5-30 V	A single B double O without	1 IP 50 4 IP 64	K30 Keyway/ 30 mm G30 Set screw/ 30 mm G45 Set screw/ 45 mm	R RS422 + Alarm T RS422 + Sense K Push-pull ³⁾ I Push-pull	B Cable radial 1,5 m B-F0 Cable radial 5 m B-K0 Cable radial 10 m 4 SUB-D 15-Connector

³⁾ Driver type DL, see < www.ichaus.de >