

## Inductive Linear Displacement Transducers

### Model IWE 260

Measuring strokes : 80 mm, 170 mm, 240 mm, 360 mm

- Contactless, robust sensor system
- Infinite resolution, no hysteresis
- Digital interface SSI
- Resolution 12 Bits / natural binary
- Gauge with spring return up to 100 mm
- Protection class IP 66

#### Construction and operating principle

The displacement transducer operates according to the principle of the differential choke, i.e. an inductive half bridge. It consists of two coils which are encapsulated in a stainless steel cylinder. A mu-metal plunger core causes opposing changes of inductance when it is displaced through the centre of the coils. These changes are converted by the integral electronic circuit into a signal proportional to the displacement. A 12 bits A/D converter supplied a proportional digital signal which can be calibrated before delivery via an integral-controller.

The transducers are completely sealed to ensure positive protection against vibration, shock, humidity, oil and corrosive matter.

**Standard measuring strokes:** 80 mm, 170 mm,  
240 mm, 360 mm

#### Special calibration

Up on request the measuring stroke can be reduced without affecting neither the resolution nor the case length, e.g. 200 mm measuring stroke (IWE 260/200) will be generated using IWE 260/40.

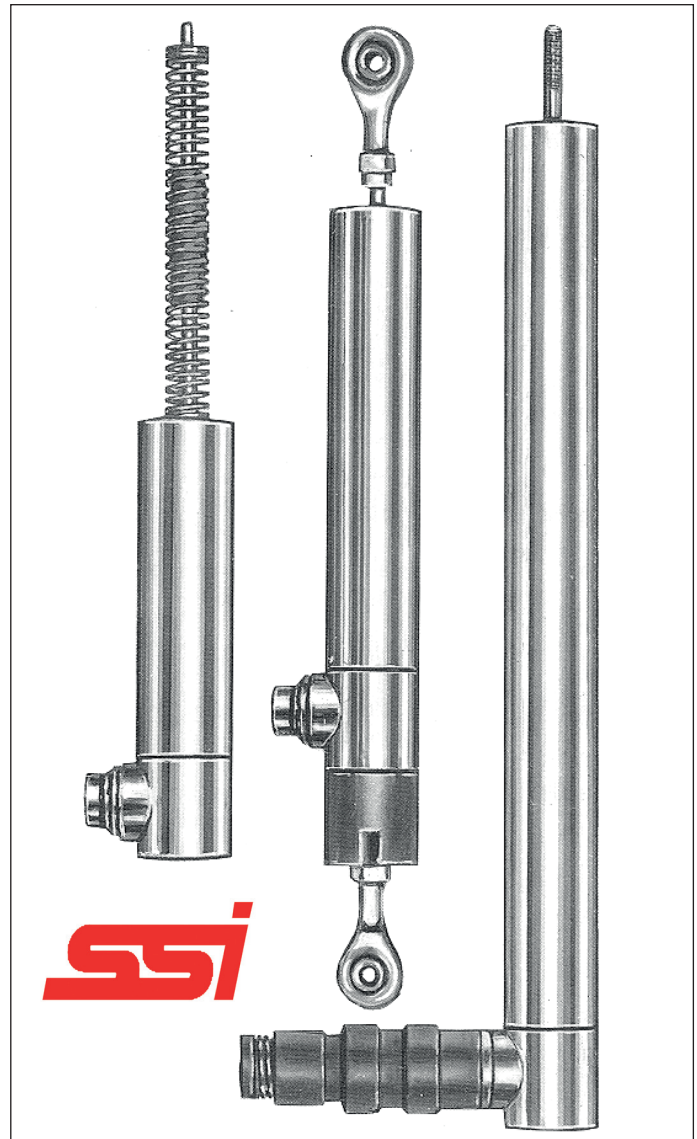
#### Electrical data

- Supply voltage range  $V_s$  : 21.5 to 30 VDC  
(prot'd against reverse polarity)
- Output code: Natural binary
- Data output: SSI-Differential
- Clock input: SSI-Differential to RS 422
- Monoflops rate: 10 to 30  $\mu$ s
- Clock frequency: 125 kHz
- Interface profile: SSI 13 Bits
- Linearity: 0.5 % or 0.25 %
- Temperature drift: < 0.01 %/°C
- Stability: < 0.1 % in 24 hours
- Measurement frequency: 100 Hz max.

**Note:** If not otherwise indicated all data are valid at 20° C ambient temperature, at  $V_s = 24$  VDC and 30 min. turn-on time.

#### Measuring direction

The measuring signal increases when the plunger moves in direction of the connector. Up to request the reverse action can be calibrated before delivery.



#### Environmental data

- Operating temperature range: -10° C to +80° C
- Storage temperature range: -30° C to +80° C
- Resistance to shock: 250 g SRS at 20 at 2000 Hz
- Resistance to vibration: 20 g rms (50 g peak) at 20 to 2000 Hz
- Protection class: IP 66

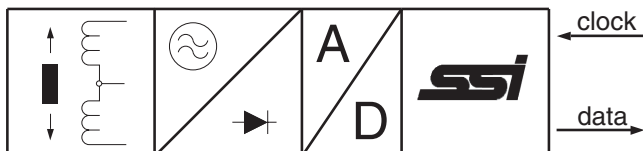
#### Materials

- External and internal tube : Chrome-nickel steel
- Plunger : Chrome-nickel steel
- Core : Mu-metal
- Connector case : Brass, nickel-plated
- Connector contacts : Gold-plated
- Spring and gauge head : Stainless steel ("T")

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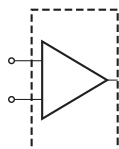
## SSI (Synchron Serielles Interface)

The absolute information derived by the transducer is converted into serial information and the transmitted to a receiving electronic circuit in synchronism with a clock. Important advantages are: Low number of data lines and high reliability.

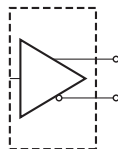


## Input and output circuits

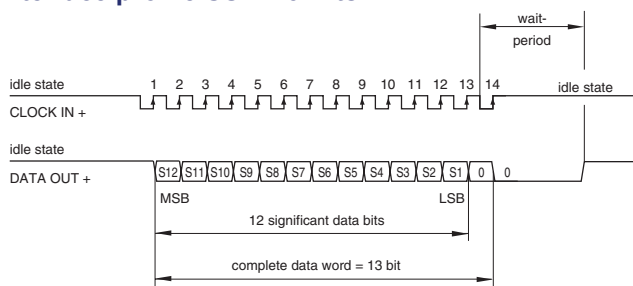
Clock (on)



Data (off)



## Interface profile SSI - 13 Bits



## Lengths and masses ( refer to drawings page 3)

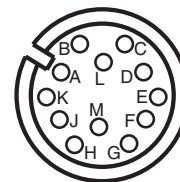
Type	L1 * mm	L2 mm	without plunger g	plunger only g
IWE 260/80	70	140	240	19
IWE 260/170	115	250	380	31
IWE 260/240	150	350	540	40
IWE 260/360	210	500	720	56
Ball joint, front			22 g	
Ball joint rear			55 g	

\* L1 = Plunger in central position: 2047 positions.

## Electrical connections at plug

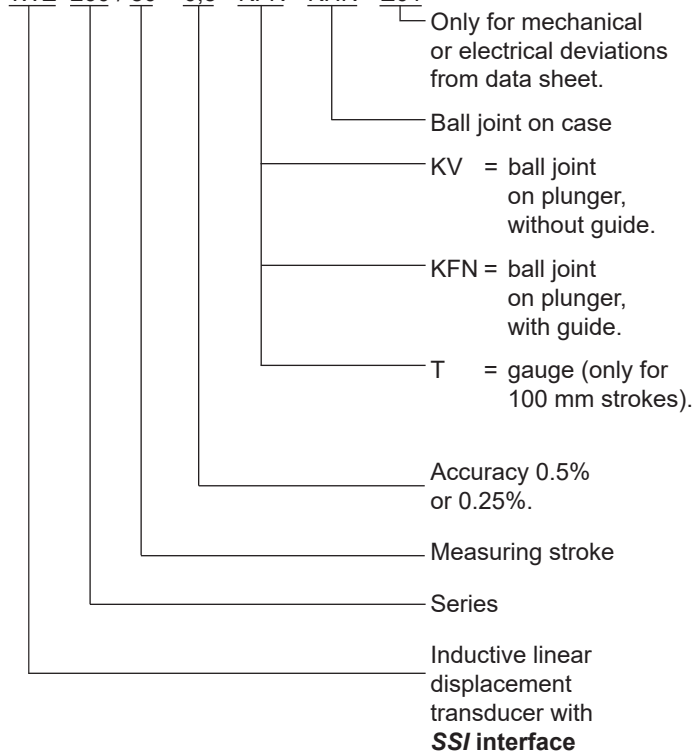
(View at connecting face of counter plug)

Pin	Function	PIN	Function
A	TAKT IN -	G	do not connect
B	TAKT IN +	H	n.c.
C	DATA OUT +	J	n.c.
D	DATA OUT -	K	n.c.
E	n.c.	L	+ V <sub>S</sub> = 24 VDC
F	do not connect	M	- V <sub>S</sub> = 0 Volt



## Order code format

IWE 260 / 80 - 0,5 - KFN - KHN - E01\*



\* The applicable A-No. is allocated after the definition of the deviation when ordering. No A-No. is given for standard versions as specified in the data sheet.

Special versions with cable exit will receive "Kx" in addition to above ordering code (X for length of cable).

## Accessories (must be ordered separately)

SR: Stainless tube to protect the plunger against lateral pressure (ref. to data sheet 11537).

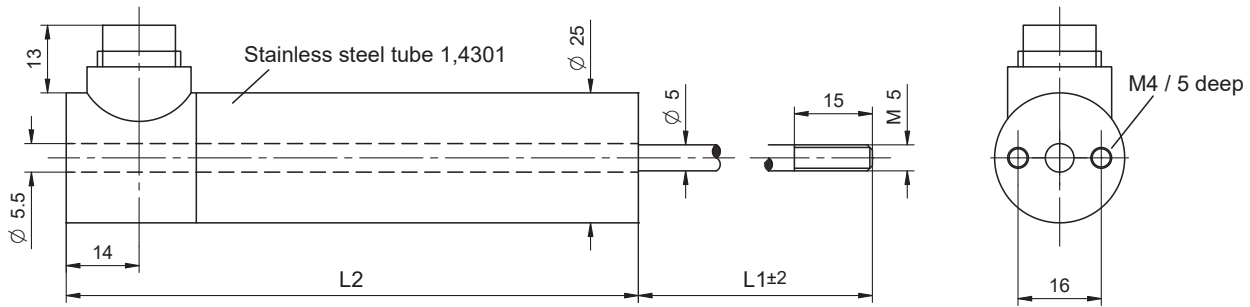
MB 25 : Metal mounting block.

STK12G30: Counter plug with metal housing straight.

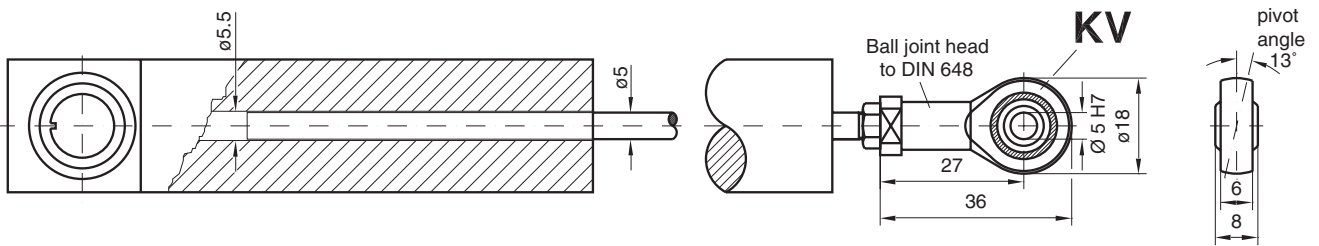
# Inductive Linear Displacement Transducers IWE 260

## Dimensions in mm

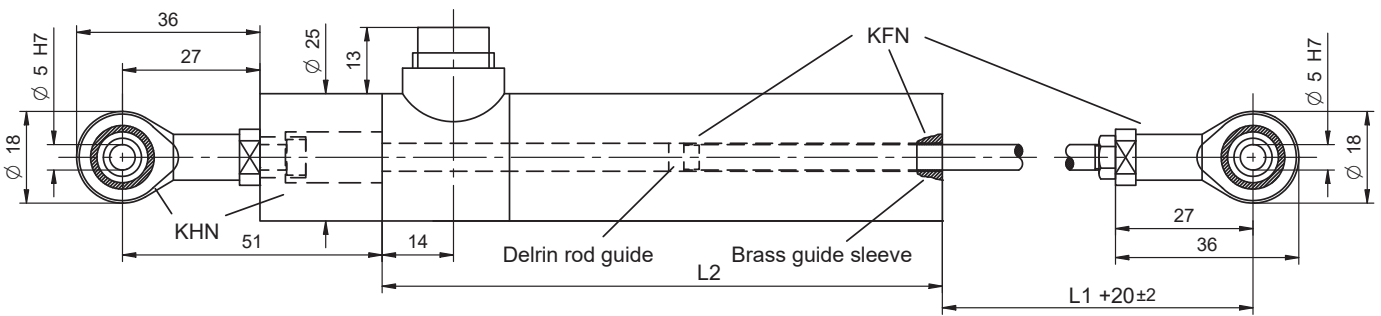
### Standard version (without rod guide)



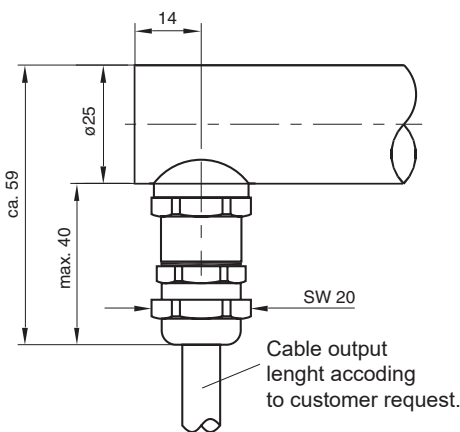
### Version with ball joint on plunger (KV) (without rod guide)



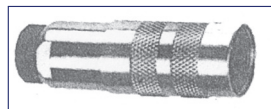
### Version with ball joints on plunger (KFN) and on end of case (KFH) (with rod guide, captivated)



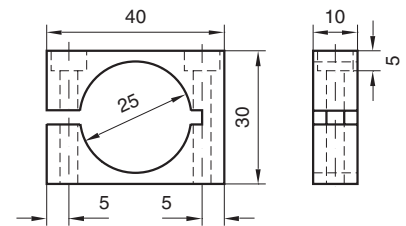
### Version with cable output and cable gland



**Mating Plugs**  
STK12G30:  
Counter plug with  
metal housing straight.



**MB 25 Mounting block**, brass Nickel plated  
(to be ordered separately)



2 hexagon socket  
screws M4/35 mm  
long are supplied  
with each item.

Mass : 60 g

### Gauge version (T) with return spring (only up to 100 mm stroke)

Measuring stroke mm	BM mm	B1 mm	FM N	FC N/m
100	140	198	~ 4	0.03

BM = Plunger in central position    FM = Spring prestress  
B1 = Plunger full out                    Fc = Spring rate

