



# HEIDENHAIN



Product Information

**IBV 3171**

**IBV 3271**

Interface Electronics  
in Cable Design

# IBV 3x71

- Interface electronics in cable design
- Up to 100-fold interpolation
- Cable design with electronics integrated in the D-sub connector

Specifications	IBV 3171		IBV 3271			
<b>Input</b>	Incremental signals $\sim 1 V_{PP}$					
Electrical connection*	<ul style="list-style-type: none"> <li>• 15-pin, 2-row D-sub connector (female), with locking nuts</li> <li>• 12-pin M23 connector (female)</li> </ul>					
Cable	Diameter: 4.5 mm; cable length: $\leq 3$ m					
Input frequency <sup>1)</sup> for interpolation*	5-fold: 200 kHz <sup>2)</sup>	10-fold: 200 kHz <sup>2)</sup>	20-fold: 100 kHz <sup>3)</sup>	25-fold: 80 kHz <sup>3)</sup>	50-fold: 40 kHz	100-fold: 20 kHz
<b>Output</b>	Incremental signals $\square$ TTL					
Electrical connection	15-pin, 2-row D-sub connector (male) with locking screws and integrated electronics					
Cable length	$\leq 100$ m with HEIDENHAIN cable ( $\leq 20$ m when homing/limit signals are used)					
Edge separation <i>a</i>	$\geq 0.100 \mu s$					
<b>Power supply</b>	5 V $\pm 0.25$ V measured at IBV					
<b>Current consumption</b> (typical)	$\leq 80$ mA (without load or encoder)					
<b>Operating temperature</b>	0 °C to 70 °C					
<b>Storage temperature</b>	-30 °C to 70 °C					
<b>Vibration</b> 55 Hz to 2000 Hz	100 m/s <sup>2</sup> (EN 60068-2-6)					
<b>Shock</b> 11 ms	200 m/s <sup>2</sup> (EN 60068-2-27)					
<b>Protection</b>	IP40					
<b>Mass</b>	71 g (IBV without cable with electronics)					

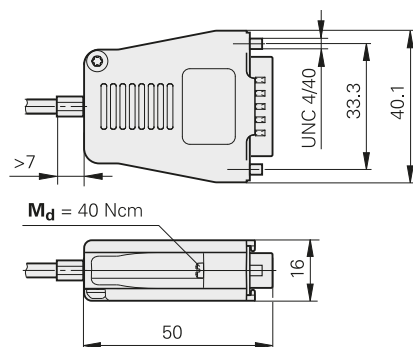
\* Please select when ordering

1) Tolerance:  $\pm 5$  %; incorrect output signals result if exceeded

2) Maximum input frequency for referencing: 50 kHz


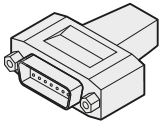
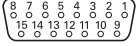

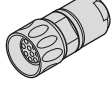
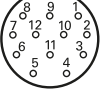



3) Maximum input frequency for referencing: 70 kHz

mm  
  
 Tolerancing ISO 8015  
 ISO 2768 - m H  
 $\leq 6$  mm:  $\pm 0.2$  mm

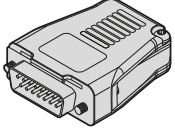
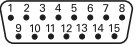




# Electrical connection

## Pin layout for IBV input

  					  								
	Power supply				Incremental signals						Other signals		
	12	2	10	11	5	6	8	1	3	4	/	7	9
	4	12	2	10	1	9	3	11	14	7	5/13/15	8	6
	U <sub>P</sub>	Sensor U <sub>P</sub>	0V	Sensor 0V	A+	A-	B+	B-	R+	R-	Vacant	H <sup>1)</sup> L1 <sup>1)</sup>	L <sup>1)</sup> L2 <sup>1)</sup>
	Brown/ Green	Blue	White/ Green	White	Brown	Green	Gray	Pink	Red	Black	/	Violet	Yellow

## Pin layout for IBV output

<b>15-pin D-sub connector with integrated interface electronics</b>   														
	Power supply				Incremental signals						Other signals			
	4	12	2	10	1	9	3	11	14	7	13	8	6	15
	U <sub>P</sub>	Sensor 5V	0V	Sensor 0V	U <sub>a1</sub>	$\overline{U}_{a1}$	U <sub>a2</sub>	$\overline{U}_{a2}$	U <sub>a0</sub>	$\overline{U}_{a0}$	$\overline{U}_{aS}$	H <sup>1)</sup> L1 <sup>1)</sup>	L <sup>1)</sup> L2 <sup>1)</sup>	<sup>2)</sup> PWT

**Shield** on housing; **U<sub>P</sub>** = Power supply voltage

**Sensor:** The sensor line is connected internally with the corresponding power line.

<sup>1)</sup> Homing/limit signals, if supported by the encoder (otherwise, logic level HIGH)

<sup>2)</sup> Conversion of TTL/11 μA<sub>PP</sub> for PWT


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This Product Information supersedes all previous editions, which thereby become invalid. The basis for ordering from HEIDENHAIN is always the Product Information document edition valid when the order is made.



## Further information

Brochure: *Interfaces of HEIDENHAIN Encoders*

Brochure: *Cables and Connectors*

Product overview: *Interface Electronics*

1078628-xx

1206103-xx

598160-xx