



# HEIDENHAIN



Product Information

**IBV 3171**

**IBV 3271**

**IBV 3371**

Signal Converters  
in Cable Design

# IBV 3000 series

- Signal converters in cable design
- Up to 400-fold interpolation
- Cable design with electronics integrated in the D-sub connector

Specifications	IBV 3171		IBV 3271				IBV 3371			
<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	10-fold: 200 kHz	20-fold: 100 kHz	25-fold: 80 kHz	50-fold: 40 kHz	100-fold: 20 kHz	200-fold: 12.5 kHz	400-fold: 6.25 kHz	400-fold: 3.125 kHz	
<b>Output</b>	Incremental signals $\square$ $\square$ 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) <sup>2)</sup>									
Edge separation <i>a</i>	$\geq 0.100 \mu s$						$\geq 0.075 \mu s$		$\geq 0.175 \mu s$	
<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 <b>Shock</b> 11 ms	100 m/s <sup>2</sup> (EN 60068-2-6) 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

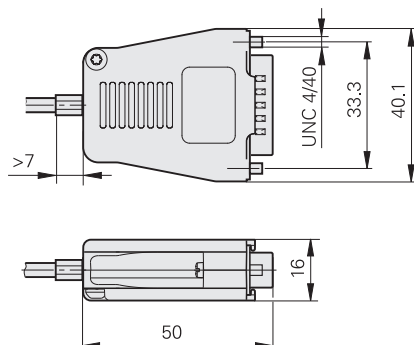
<sup>1)</sup> Tolerance:  $\pm 5$  %; incorrect output signals result if exceeded

<sup>2)</sup> Also consider the maximum cable length of the connected encoder

## Note:


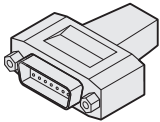
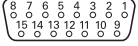

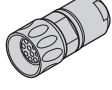
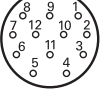



If you use the ATS adjusting and testing software, you must upgrade to version 3.6.03.

mm  
  
 Tolerancing ISO 8015  
 ISO 2768:1989-mH  
 $\leq 6$  mm:  $\pm 0.2$  mm



# Electrical connection

## Pin layout for IBV input

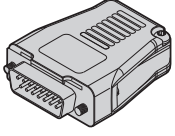
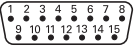


  					  								
	Power supply				Incremental signals						Other signals		
	12	2	10	11	5	6	8	1	3	4	/	7	9
	4	12	2	10	1	9	3	11	14	7	5/13/15	8	6
	U <sub>P</sub>	U <sub>P</sub> Sensor	0V	0V Sensor	A+	A-	B+	B-	R+	R-	Vacant	H <sup>1)</sup> L1 <sup>1)</sup>	L <sup>1)</sup> L2 <sup>1)</sup>
	Brown/ Green	Blue	White/ Green	White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

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

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

<sup>1)</sup> Homing/limit signals, if supported by the encoder

## 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>	U <sub>P</sub> Sensor	0V	0V Sensor	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>** = Voltage supply

**Sensor:** The sense 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> TTL/11 μA<sub>PP</sub> conversion for the PWT


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# HEIDENHAIN

**DR. JOHANNES HEIDENHAIN GmbH**

Dr.-Johannes-Heidenhain-Straße 5

**83301 Traunreut, Germany**

 +49 8669 31-0

 +49 8669 32-5061

info@heidenhain.de

[www.heidenhain.com](http://www.heidenhain.com)

This Product Information document 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 placed.



**Further information:**

Brochure: *Interfaces of HEIDENHAIN Encoders*

Brochure: *Cables and Connectors*

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