



HEIDENHAIN



Product Information

IBV 6000 Series

Interpolation and
Digitizing Electronics


September 2010

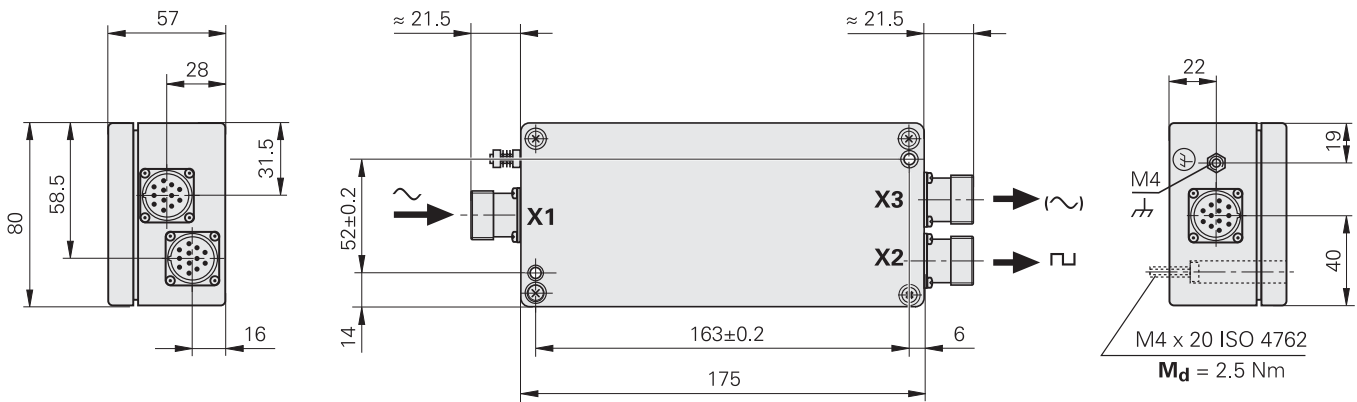
IBV 6000 Series

Interpolation and digitizing electronics

- Input $\sim 1V_{PP}$
- Two outputs \square TTL/ $\sim 1V_{PP}$ (adjustable)

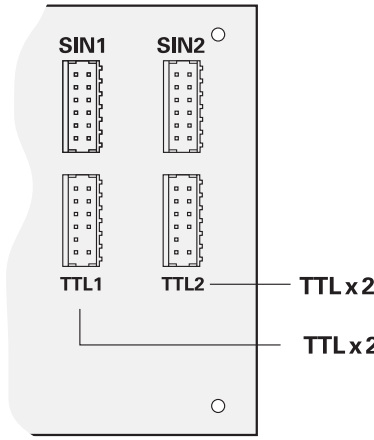
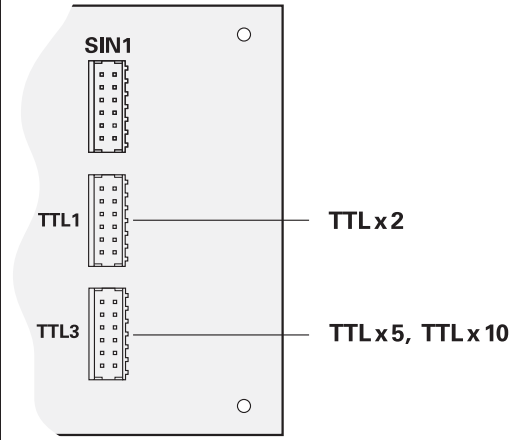


mm

 Tolerancing ISO 8015
 ISO 2768 - m H
 < 6 mm: ± 0.2 mm



Selecting the output signals

Various output signals are available, depending on the product model. They can be assigned to the two output flange sockets by reconnecting the plug-in PCB.

	IBV 6072	IBV 6172
		
Output signals	2 x $\sim 1V_{PP}$ and 2 x \square TTL x 2	1 x $\sim 1V_{PP}$ and 1 x \square TTL x 2 and 1 x \square TTL x 5 or x 10 ¹⁾
Possible combinations	<ul style="list-style-type: none"> • $\sim 1V_{PP}$ and $\sim 1V_{PP}$ • $\sim 1V_{PP}$ and \square TTL x 2 • \square TTL x 2 and \square TTL x 2 	<ul style="list-style-type: none"> • $\sim 1V_{PP}$ and \square TTL x 2 (see also IBV 6072) • $\sim 1V_{PP}$ and \square TTL x 5 or x 10 • \square TTL x 2 and \square TTL x 5 or x 10

Specifications	IBV 6072	IBV 6172							
Input	$\sim 1 V_{PP}$								
Electrical connection	M23 flange socket (female) 12-pin								
Cable length	≤ 60 m at $U_P > 4.9$ V ≤ 30 m at $I_{encoder} \leq 120$ mA								
Interpolation ¹⁾	2-fold	5-fold, 10-fold							
Input frequency ¹⁾ for interpolation	Nominal values ²⁾								
	2-fold	500 kHz							
	5-fold	–	200 kHz	200 kHz	133 kHz	100 kHz	80 kHz	50 kHz	25 kHz
	10-fold	–	200 kHz	100 kHz	66 kHz	50 kHz	40 kHz	25 kHz	12.5 kHz
Outputs³⁾	2 x $\sim 1 V_{PP}$ and 2 x \square TTL x 2 (TTL non-clocked)		1 x $\sim 1 V_{PP}$ and 1 x \square TTL x 2 and 1 x \square TTL x 5 or x 10 ¹⁾ (TTL clocked)						
Electrical connection	Two M23 flange sockets (male) 12-pin								
Cable length	≤ 100 m ($\overline{U_{aS}} \leq 50$ m)								
Edge separation a	$\geq 0.150 \mu s$	$\geq 0.100 \mu s$	$\geq 0.220 \mu s$	$\geq 0.345 \mu s$	$\geq 0.465 \mu s$	$\geq 0.585 \mu s$	$\geq 0.950 \mu s$	$\geq 1.925 \mu s$	
Reference mark signal ¹⁾	Pulse width 90° elec. (not with IBV 6072) or 270° elec.								
Fault indication ¹⁾	through fault detection signal $\overline{U_{aS}}$ or, in addition, U_{a1}/U_{a2} high impedance								
Power supply	5 V \pm 5% (only through X2)								
Current consumption⁴⁾	≤ 60 mA	≤ 90 mA							
Operating temperature Storage temperature	0 °C to 70 °C –30 °C to 80 °C								
Vibration 50 to 2000 Hz Shock 11 ms	≤ 10 m/s ² ≤ 300 m/s ²								
Degree of protection	IP 65								
Weight	Approx. 0.7 kg								

Bold: This version is the factory default setting




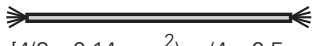

¹⁾ Adjustable

²⁾ The actual input frequency can be up to 5 % lower. Exceeding this limit results in failure.






³⁾ This signals are available within the device and can be assigned by reconnecting the two output flange sockets.

⁴⁾ Not including the current consumption of the encoder (see *encoder* brochure) and without output load (80 mA with recommended input circuitry).



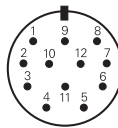


Electrical Connection

Connecting cable or adapter cable with M23 connector (male) 12-pin  Cable and connector, 12-pin. See also HEIDENHAIN catalogs for linear encoders, angle encoders and rotary encoders as well as Product Information sheets for the respective encoders.	Connecting cable M23 12-pin, Ø 8 mm	
	Complete ID 298 399-xx	
	With one connector ID 309 777-xx	
	Cable only ID 244 957-01	 [4(2 x 0.14 mm ²) + (4 x 0.5 mm ²)]
	Connector (female), 12-pin ID 291 697-05	

IBV input – $\sim 1 V_{PP}$

12-pin flange socket M23													
													
	Power supply				Incremental signals						Other signals		
	12	2	10	11	5	6	8	1	3	4	7	9	/
	U_P	Sensor U _P	0V	Sensor 0V	A+	A-	B+	B-	R+	R-	Vacant	Vacant	Vacant
	Brown/ Green	Blue	White/ Green	White	Brown	Green	Gray	Pink	Red	Black	Violet	/	Yellow

IBV output – \square TTL/ $\sim 1 V_{PP}$

12-pin flange socket M23													
			<i>Mating connector:</i> 12-pin connector M23										
	Power supply ¹⁾				Incremental signals						Other signals		
	12	2	10	11	5	6	8	1	3	4	7	/	9
\square TTL	U_P	Sensor 5V	0V	Sensor 0V	U_{a1}	\overline{U}_{a1}	U_{a2}	\overline{U}_{a2}	U_{a0}	\overline{U}_{a0}	\overline{U}_{aS}	Vacant	Vacant
$\sim 1 V_{PP}$					A+	A-	B+	B-	R+	R-	Vacant		
	Brown/ Green	Blue	White/ Green	White	Brown	Green	Gray	Pink	Red	Black	Violet	/	Yellow

Cable shield connected to housing; **U_P** = power supply voltage

Sensor: The sensor line is connected in the encoder with the corresponding power line.

Vacant pins or wires must not be used!

¹⁾ IBV power supply: only through the two flange sockets, see *Mounting Instructions*

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For more information

- Product overview: *Interface Electronics*

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