



# HEIDENHAIN



Product Overview

## **Interface Electronics**

November 2014

# Interface electronics

Interface electronics from HEIDENHAIN adapt the encoder signals to the interface of the subsequent electronics. They are used when the subsequent electronics cannot directly process the output signals from HEIDENHAIN encoders, or if additional interpolation of the signals is necessary.

HEIDENHAIN interface electronics are available in various mechanical designs.

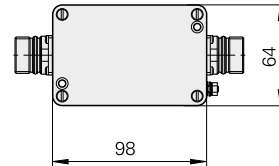
## Box design

Because of their high IP 65 degree of protection, interface electronics with a box design are well suited for a rough industrial environment, for example where machine tools operate. The inputs and outputs are equipped with robust M23 and M12 connecting elements. The stable cast-metal housing offers protection against physical damage as well as against electrical interference.

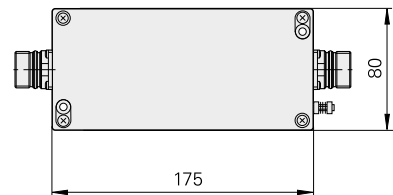
The EXE/IBV 100 series distinguishes itself from the EXE/IBV 600 series primarily in its compact dimensions.



E.g. IBV 100



E.g. IBV 600



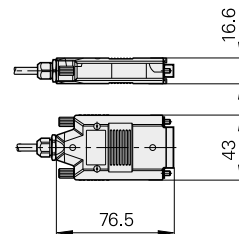
## Plug design

The interface electronics with a plug design save a great deal of space: there is room for the entire interpolation and digitizing electronics in an extended D-sub connector housing. This offers protection against physical damage (IP 40 protection) and electrical interference.

Appropriate accessory parts can be used to firmly attach the connecting elements, and stack several connectors on top of each other.



E.g. APE 371



In the *Evaluation Electronics for Metrology Applications* you will find more products for signal adjustment:

- MSE 1000 – modular evaluation unit for multipoint inspection apparatuses
- EIB 700 – with four inputs and Ethernet interface
- The IK 220 – PC counter card for two axes

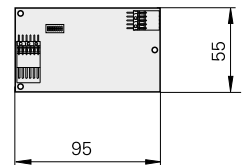
### Version for integration

There are also versions of the interface electronics intended for integration in existing electronics. These pluggable boards must be protected against electrical and physical influences.

The **IDP** series consists of pure interpolation and digitizing electronics, and is intended for integration as input assemblies in non-HEIDENHAIN electronics.



**IDP 100**

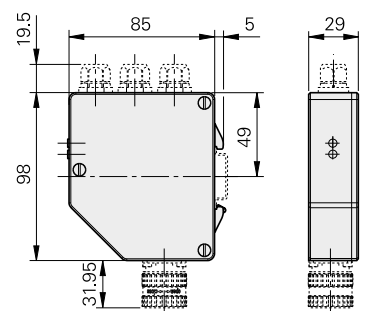


### Top-hat rail design

The interface electronics for top-hat rail mounting are suited for operation in an electrical cabinet with simple fastening on a standard DIN rail.



**Gateway**



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

# Selection guide

## Input signals of the interface electronics

Interface electronics from HEIDENHAIN can be connected to encoders with sinusoidal signals of 1 V<sub>PP</sub> (voltage signals) or 11 μA<sub>PP</sub> (current signals). Encoders with the serial interfaces EnDat or SSI can also be connected to various interface electronics.

## Output signals of the interface electronics

Interface electronics with the following interfaces to the subsequent electronics are available:

- TTL square-wave pulse trains
- EnDat 2.2
- DRIVE-CLiQ
- Fanuc Serial Interface
- Mitsubishi high speed interface
- Yaskawa Serial Interface
- Profibus

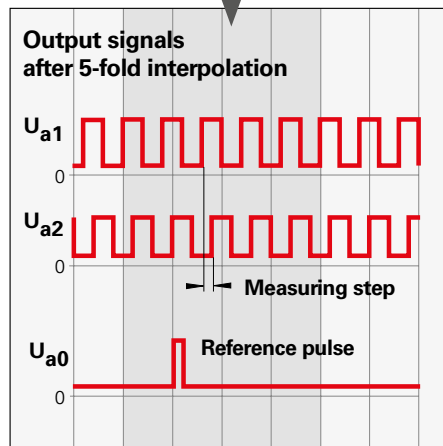
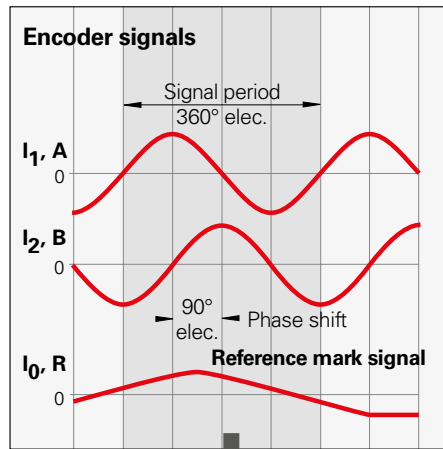
## Interpolation of the sinusoidal input signals

In addition to being converted, the sinusoidal encoder signals are also interpolated in the interface electronics. This permits finer measuring steps and, as a result, higher control quality and better positioning behavior.

## Formation of a position value

Some interface electronics have an integrated counting function. Starting from the last reference point set, an absolute position value is formed when the reference mark is traversed, and is transferred to the subsequent electronics.

## Example of 5-fold interpolation



Outputs	
Interface	Quantity
TTL	1
TTL/1 V <sub>PP</sub> Adjustable	2
EnDat 2.2	1
DRIVE-CLiQ	1
Fanuc Serial Interface	1
Mitsubishi high speed interface	1
Yaskawa serial interface	1
PROFIBUS-DP	1

<sup>1)</sup> Switchable

DRIVE-CLiQ is a registered trademark of SIEMENS Aktiengesellschaft

The *Interfaces of HEIDENHAIN Encoders* brochure includes comprehensive descriptions of all available interfaces as well as general electrical information.

Inputs		Design – Protection class	Interpolation <sup>1)</sup> or subdivision	Model
Interface	Quantity			
~ 1 V <sub>PP</sub>	1	Box design – IP 65	5/10-fold	<b>IBV 101</b>
			20/25/50/100-fold	<b>IBV 102</b>
			Without interpolation	<b>IBV 600</b>
			25/50/100/200/400-fold	<b>IBV 660B</b>
		Plug design – IP 40	5/10/20/25/50/100-fold	<b>APE 371</b>
		Version for integration – IP 00	5/10-fold	<b>IDP 181</b>
20/25/50/100-fold	<b>IDP 182</b>			
~ 11 μA <sub>PP</sub>	1	Box design – IP 65	5/10-fold	<b>EXE 101</b>
			20/25/50/100-fold	<b>EXE 102</b>
			Without/5-fold	<b>EXE 602E</b>
			25/50/100/200/400-fold	<b>EXE 660B</b>
		Version for integration – IP 00	5-fold	<b>IDP 101</b>
~ 1 V <sub>PP</sub>	1	Box design – IP 65	2-fold	<b>IBV 6072</b>
			5/10-fold	<b>IBV 6172</b>
			5/10-fold and 20/25/50/100-fold	<b>IBV 6272</b>
~ 1 V <sub>PP</sub>	1	Box design – IP 65	≤ 16384-fold subdivision	<b>EIB 192</b>
	2	Plug design – IP 40	≤ 16384-fold subdivision	<b>EIB 392</b>
		Box design – IP 65	≤ 16384-fold subdivision	<b>EIB 1512</b>
EnDat 2.2	1	Box design – IP 65	–	<b>EIB 2391 S</b>
~ 1 V <sub>PP</sub>	1	Box design – IP 65	≤ 16384-fold subdivision	<b>EIB 192 F</b>
		Plug design – IP 40	≤ 16384-fold subdivision	<b>EIB 392 F</b>
	2	Box design – IP 65	≤ 16384-fold subdivision	<b>EIB 1592 F</b>
~ 1 V <sub>PP</sub>	1	Box design – IP 65	≤ 16384-fold subdivision	<b>EIB 192 M</b>
		Plug design – IP 40	≤ 16384-fold subdivision	<b>EIB 392 M</b>
	2	Box design – IP 65	≤ 16384-fold subdivision	<b>EIB 1592 M</b>
EnDat 2.2 <sup>2)</sup>	1	Plug design – IP 40	–	<b>EIB 3391 Y</b>
EnDat 2.1; EnDat 2.2	1	Top-hat rail design	–	<b>PROFIBUS Gateway</b>

<sup>2)</sup> Only LIC 4100 with 5 nm measuring step, LIC 2100 with 50 nm and 100 nm measuring steps

# For more information

For more detailed information, mounting instructions, technical specifications and exact dimensions, please refer to our brochures and Product Information data sheets, or visit us on the Internet at [www.heidenhain.de](http://www.heidenhain.de).

The *Interfaces of HEIDENHAIN Encoders* brochure includes comprehensive descriptions of all available interfaces as well as general electrical information.

In the *Evaluation Electronics for Metrology Applications* catalog you will find more products for signal adjustment.



Catalog  
**Interfaces of HEIDENHAIN Encoders**



Catalog  
**Evaluation Electronics for Metrology Applications**



Product Information  
**APE 371**



Product Information  
**EIB 192**



Product Information  
**EIB 392**



Product Information  
**EIB 1500 Series**

Contents:  
EIB 1512  
EIB 1592F  
EIB 1592M



Product Information  
**EIB 2391S**



Product Information  
**EIB 3391Y**



Product Information  
**ExN 100 Series**

Contents:  
EXE 101  
EXE 102



Product Information  
**ExN 600 Series**

Contents:  
EXE 602 E  
EXE 660 B



Product Information  
**Gateway**



Product Information  
**IBV 100 Series**

Contents:  
IBV 101  
IBV 102



Product Information  
**IBV 600 Series**

Contents:  
IBV 600  
IBV 606  
IBV 660 B



Product Information  
**IBV 6000 Series**

Contents:  
IBV 6072  
IBV 6172  
IBV 6272



Product Information  
**IDP 100 Series**

Contents:  
IDP 101  
IDP 181  
IDP 182

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