



Product Overview

Signal Converters

07/2019

Signal converters

The signal converters 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 when additional interpolation of the signals is necessary.

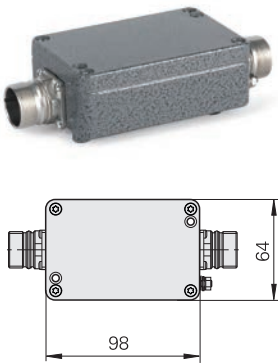
The signal converters from HEIDENHAIN are available in various designs.

Box design

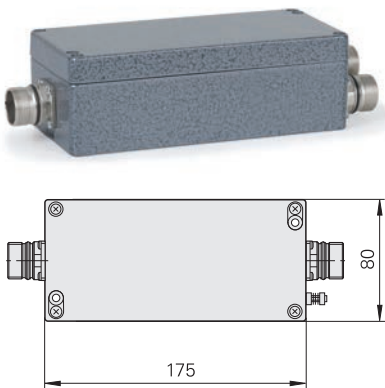
Due to their high IP65 rating, box-design signal converters are well suited for harsh industrial environments, such as on machine tools. The inputs and outputs are equipped with robust M23 or M12 connecting elements. The sturdy cast-metal housing protects against mechanical damage and electronic interference.

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

e.g., IBV 100 series



e.g., IBV 6000 series



Further units for signal adaptation can be found in the *Evaluation Electronics for Metrology Applications* brochure:

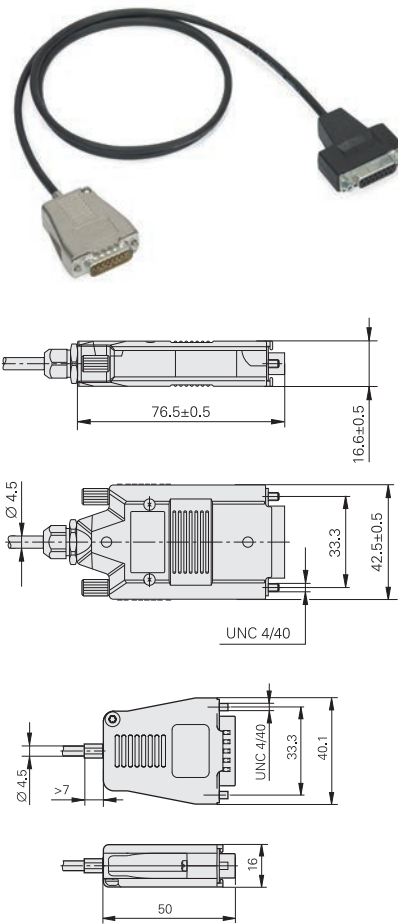
- EIB 700 with four inputs and Ethernet interface
- IK 220 PC counter card for two axes

Plug design

The plug-design signal converters are particularly space-saving: their elongated D-sub connector housing accommodates the complete interpolation and digitalization electronics, which are thereby protected from mechanical damage (IP40 rating) and electronic interference.

Appropriate accessories allow for firm fastening of the connecting elements and permit multiple connectors to be stacked on top of each other.

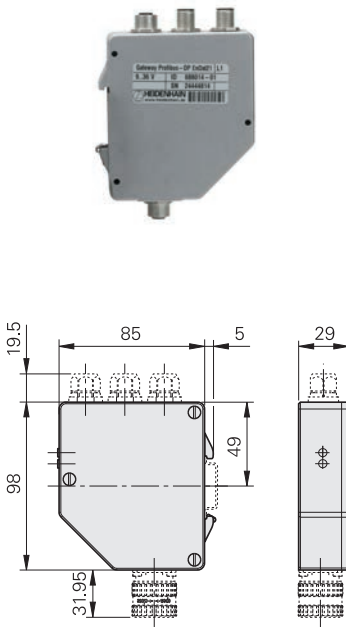
e.g., IBV 3000 series



Top-hat rail design

The signal converters for top-hat rail mounting are suitable for operation in an electrical cabinet, featuring convenient fastening onto a standard top-hat rail.

Gateway



Input signals of the signal converters

HEIDENHAIN signal converters can be connected to encoders with 1 V_{PP} sinusoidal signals (voltage signals) or 11 μA_{PP} sinusoidal signals (current signals). Encoders with the EnDat or SSI serial interface can be connected to various signal converters as well.

Output signals of the signal converters

The signal converters are available with the following interfaces to the subsequent electronics.

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

Interpolation of the sinusoidal input signals

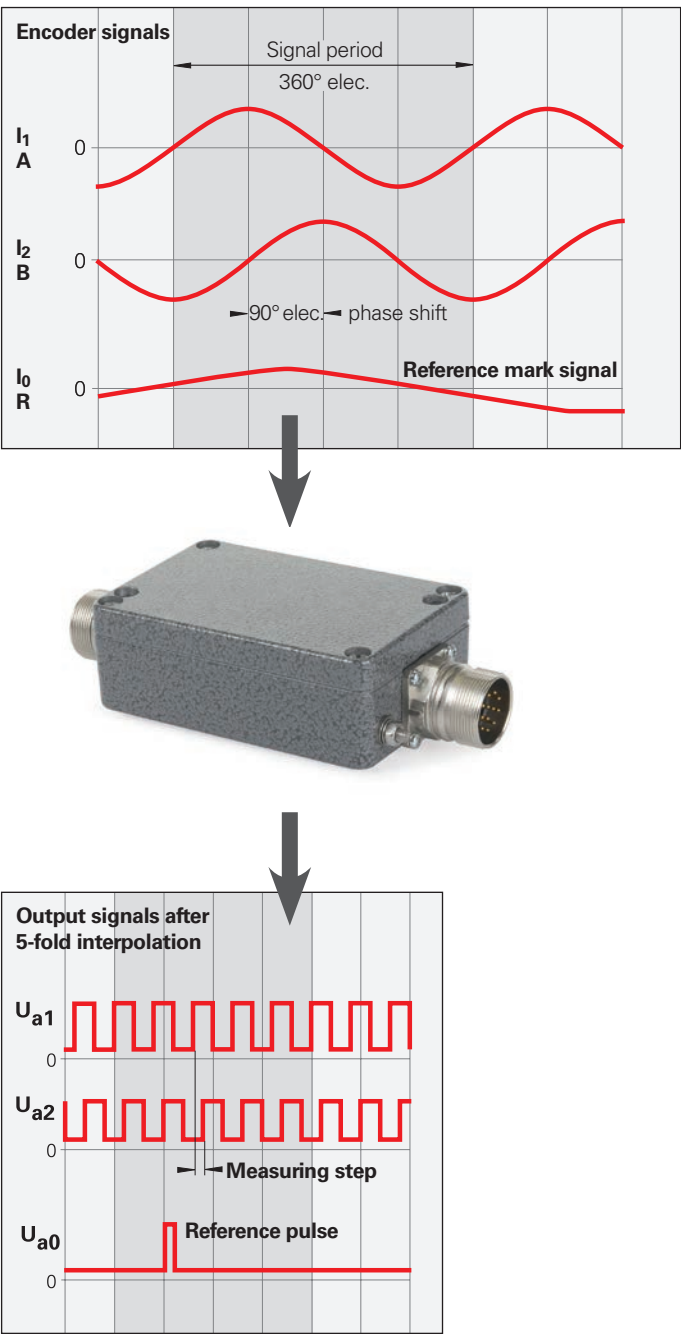
In addition to performing signal conversion, the signal converter also interpolates the sinusoidal encoder signals. This permits finer measuring steps, resulting in higher control quality and superior positioning behavior.

Generation of a position value

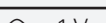
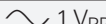
Various signal converters feature an integrated counter function. Starting from the last set reference point, an absolute position value is generated and output to the subsequent electronics when the reference mark is crossed.

Detailed descriptions of all available interfaces, as well as general electrical information, can be found in the *Interfaces of HEIDENHAIN Encoders* brochure.

Example with 5-fold interpolation



Selection guide

Outputs		Inputs		Design – IP rating	Interpolation ¹⁾ or subdivision	Model
Interface	Quantity	Interface	Quantity			
 TTL	1	 1 V _{PP}	1	Box design – IP65	5/10-fold	IBV 101
					20/25/50/100-fold	IBV 102
					Without interpolation	IBV 600
					25/50/100/200/400-fold	IBV 660B
			1	Plug design – IP40	5/10-fold	IBV 3171
					20/25/50/100-fold	IBV 3271
 TTL/  1 V _{PP} (adjustable)	2	 1 V _{PP}	1	Box design – IP65	5/10-fold	EXE 101
					20/25/50/100-fold	EXE 102
					2-fold	IBV 6072
					5/10-fold	IBV 6172
					5/10-fold and 20/25/50/100-fold	IBV 6272
EnDat 2.2	1	 1 V _{PP}	1	Box design – IP65	≤ 16384-fold subdivision	EIB 192
				Plug design – IP40	≤ 16384-fold subdivision	EIB 392
			2	Box design – IP65	≤ 16384-fold subdivision	EIB 1512
DRIVE-CLiQ	1	EnDat 2.2	1	Box design – IP65	–	EIB 2391 S
				Cable design – IP65	–	EIB 3392 S
Fanuc Serial Interface	1	 1 V _{PP}	1	Box design – IP65	≤ 16384-fold subdivision	EIB 192 F
				Plug design – IP40	≤ 16384-fold subdivision	EIB 392 F
			2	Box design – IP65	≤ 16384-fold subdivision	EIB 1592 F
Mitsubishi high speed interface	1	 1 V _{PP}	1	Box design – IP65	≤ 16384-fold subdivision	EIB 192 M
				Plug design – IP40	≤ 16384-fold subdivision	EIB 392 M
			2	Box design – IP65	≤ 16384-fold subdivision	EIB 1592 M
Yaskawa Serial Interface	1	EnDat 2.2	1	Plug design – IP40	–	EIB 3391Y
PROFIBUS DP	1	EnDat 2.2	1	Top-hat rail design	–	PROFIBUS gateway
PROFINET IO	1	EnDat 2.2	1	Top-hat rail design	–	PROFINET gateway

¹⁾ Switchable

Further information

For detailed information, mounting instructions, specifications, and precise dimensions, please refer to our brochures and Product Information documents, or visit us on the Internet at www.heidenhain.com.

Detailed descriptions of all available interfaces, as well as general electrical information, can be found in the *Interfaces of HEIDENHAIN Encoders* brochure.

Further units for signal adaptation can be found in the *Evaluation Electronics for Metrology Applications* brochure.



Brochure
Interfaces of HEIDENHAIN Encoders



Brochure
Cables and Connectors



Brochure
Evaluation Electronics for Metrology Applications



Product Information
IBV 3171/IBV 3271



Product Information
EIB 192



Product Information
EIB 392



Product Information
EIB 1500 Series



Product Information
EIB 2391 S



Product Information
EIB 3392 S



Product Information
EIB 3391Y



Product Information
EXE 100 Series



Product Information
IBV 100 Series



Product Information
IBV 600 Series



Product Information
IBV 6000 Series



Product Information
PROFIBUS DP Gateway



Product Information
PROFINET IO Gateway

HEIDENHAIN

DR. JOHANNES HEIDENHAIN GmbH

Dr.-Johannes-Heidenhain-Straße 5
83301 Traunreut, Germany

☎ +49 8669 31-0
FAX +49 8669 32-5061

E-mail: info@heidenhain.de

www.heidenhain.de

Vollständige und weitere Adressen siehe www.heidenhain.de
For complete and further addresses see www.heidenhain.de

DE	HEIDENHAIN Vertrieb Deutschland 83301 Traunreut, Deutschland ☎ 08669 31-3132 FAX 08669 32-3132 E-Mail: hd@heidenhain.de HEIDENHAIN Technisches Büro Nord 12681 Berlin, Deutschland ☎ 030 54705-240 HEIDENHAIN Technisches Büro Mitte 07751 Jena, Deutschland ☎ 03641 4728-250 HEIDENHAIN Technisches Büro West 44379 Dortmund, Deutschland ☎ 0231 618083-0 HEIDENHAIN Technisches Büro Südwest 70771 Leinfelden-Echterdingen, Deutschland ☎ 0711 993395-0 HEIDENHAIN Technisches Büro Südost 83301 Traunreut, Deutschland ☎ 08669 31-1337	DK Denmark → SE ES FARRESA ELECTRONICA S.A. 08028 Barcelona, Spain www.farresa.es FI HEIDENHAIN Scandinavia AB 01740 Vantaa, Finland www.heidenhain.fi FR HEIDENHAIN FRANCE sarl 92310 Sèvres, France www.heidenhain.fr GB HEIDENHAIN (G.B.) Limited Burgess Hill RH15 9RD, United Kingdom www.heidenhain.co.uk GR MB Milionis Vassilis 17341 Athens, Greece www.heidenhain.gr HR Croatia → SL HU HEIDENHAIN Kereskedelmi Képviselő 1239 Budapest, Hungary www.heidenhain.hu	NZ Llama ENGINEERING Ltd 5012 Wellington, New Zealand E-mail: info@llamaengineering.co.nz PH MACHINEBANKS' CORPORATION Quezon City, Philippines 1113 E-mail: info@machinebanks.com PL APS 02-384 Warszawa, Poland www.heidenhain.pl PT FARRESA ELECTRÓNICA, LDA. 4470 - 177 Maia, Portugal www.farresa.pt RO HEIDENHAIN Reprezentantă Romania Braşov, 500407, Romania www.heidenhain.ro RS Serbia → BG RU GERTNER Service 119002 Moscow, Russian Federation www.heidenhain.ru SE HEIDENHAIN Scandinavia AB 12739 Skärholmen, Sweden www.heidenhain.se SG HEIDENHAIN PACIFIC PTE LTD Singapore 408593 www.heidenhain.com.sg SK KOPRETINA TN s.r.o. 91101 Trenčín, Slovakia www.kopretina.sk SL NAVO d.o.o. 2000 Maribor, Slovenia www.heidenhain.si TH HEIDENHAIN (THAILAND) LTD Bangkok 10250, Thailand www.heidenhain.co.th TR T&M Mühendislik San. ve Tic. LTD. ŞTİ. 34775 Y. Dudullu – Umraniye-Istanbul, Turkey www.heidenhain.com.tr TW HEIDENHAIN CO., LTD. Taichung 40768, Taiwan www.heidenhain.com.tw UA GERTNER Service 02094 Kiev, Ukraine www.heidenhain.ua US HEIDENHAIN CORPORATION Schaumburg, IL 60173-5337, USA www.heidenhain.us VN AMS Co. Ltd HCM City, Vietnam E-mail: davidgoh@amsvn.com ZA MAFEMA SALES SERVICES C.C. Kyalami 1684, South Africa www.heidenhain.co.za
AR NAKASE SRL. B1653AOX Villa Ballester, Argentina www.heidenhain.com.ar AT HEIDENHAIN Techn. Büro Österreich 83301 Traunreut, Germany www.heidenhain.de AU FCR MOTION TECHNOLOGY PTY LTD Laverton North Victoria 3026, Australia E-mail: sales@fcrmotion.com BE HEIDENHAIN NV 1760 Roosdaal, Belgium www.heidenhain.be BG ESD Bulgaria Ltd. Sofia 1172, Bulgaria www.esd.bg BR HEIDENHAIN Brasil Ltda. 04763-070 – São Paulo – SP, Brazil www.heidenhain.com.br BY GERTNER Service 220026 Minsk, Belarus www.heidenhain.by CA HEIDENHAIN CORPORATION Mississauga, Ontario L5T2N2, Canada www.heidenhain.com CH HEIDENHAIN (SCHWEIZ) AG 8603 Schwerzenbach, Switzerland www.heidenhain.ch CN DR. JOHANNES HEIDENHAIN (CHINA) Co., Ltd. Beijing 101312, China www.heidenhain.com.cn CZ HEIDENHAIN s.r.o. 102 00 Praha 10, Czech Republic www.heidenhain.cz	ID PT Servitama Era Toolsindo Jakarta 13930, Indonesia E-mail: ptset@group.gts.co.id IL NEUMO VARGUS MARKETING LTD. Holon, 5885948, Israel E-mail: neumo@neumo-vargus.co.il IN HEIDENHAIN Optics & Electronics India Private Limited Chetpet, Chennai 600 031, India www.heidenhain.in IT HEIDENHAIN ITALIANA S.r.l. 20128 Milano, Italy www.heidenhain.it JP HEIDENHAIN K.K. Tokyo 102-0083, Japan www.heidenhain.co.jp KR HEIDENHAIN Korea Ltd. Anyang-si, Gyeonggi-do, 14087 South Korea www.heidenhain.co.kr MX HEIDENHAIN CORPORATION MEXICO 20290 Aguascalientes, AGS., Mexico E-mail: info@heidenhain.com MY ISOSERVE SDN. BHD. 43200 Balakong, Selangor E-mail: sales@isoserve.com.my NL HEIDENHAIN NEDERLAND B.V. 6716 BM Ede, Netherlands www.heidenhain.nl NO HEIDENHAIN Scandinavia AB 7300 Orkanger, Norway www.heidenhain.no		

