

- Low profile package saves space
- Excellent resistance to shock and vibration
- 30mm standard through shaft, PEEK reduction hub available
- High protection level of IP66
- High performance in temperatures from -40°C to $+100^{\circ}\text{C}$
- HTL or TTL electronic
- Programmable resolutions from 1 to 10000 PPR
- Terminal box connection (also available with M12 or cable output)



Certifications:

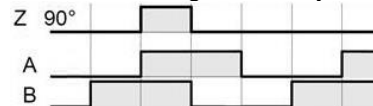
The LP Incremental Encoder is available with the following certifications



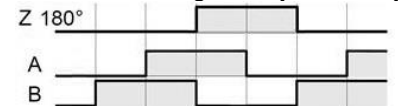
Output Waveform:

Waveform AA/ BB/ 00/ Channel B before A Clockwise

Index calibration gated A & B (code 9)



Index calibration gated B (code V/US)



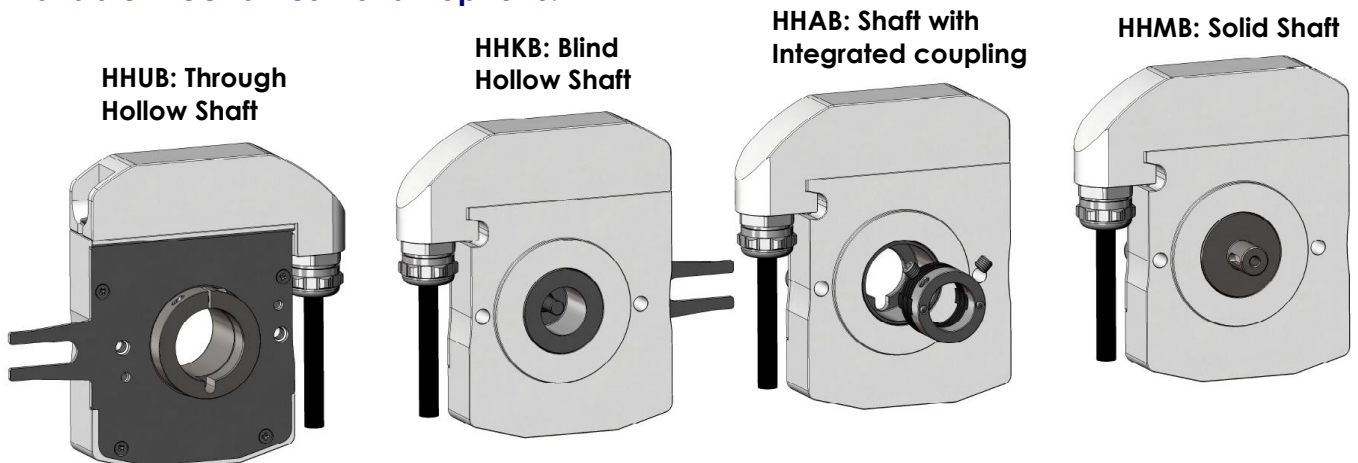
Mechanical Characteristics:

Material	Cover : anodised aluminum	Vibrations (EN60068-2-6)	$\leq 200\text{m.s}^{-2}$ (55 ... 2 000 Hz)
	Body : anodised aluminum	Shaft inertia	$< 84000\text{ g.mm}^2$
	Shaft : AISI 303 stainless steel	Static/Dynamic torque	30 / 300 mN.m
Ball bearings	6807 - Sealed	Continuous max. speed*	6000 min^{-1}
Maximum loads	Axial: 40 N	Theoretical mechanical lifetime L_{10h}^{**}	$> 18.10^9$ turns / 100000 hours
	Radial: 80 N	Encoder weight (approx.)	790g
Shocks (EN60068-2-27)	$\leq 3000\text{m.s}^{-2}$ (during 5 ms)		

* please reference the user manual heat derating curves

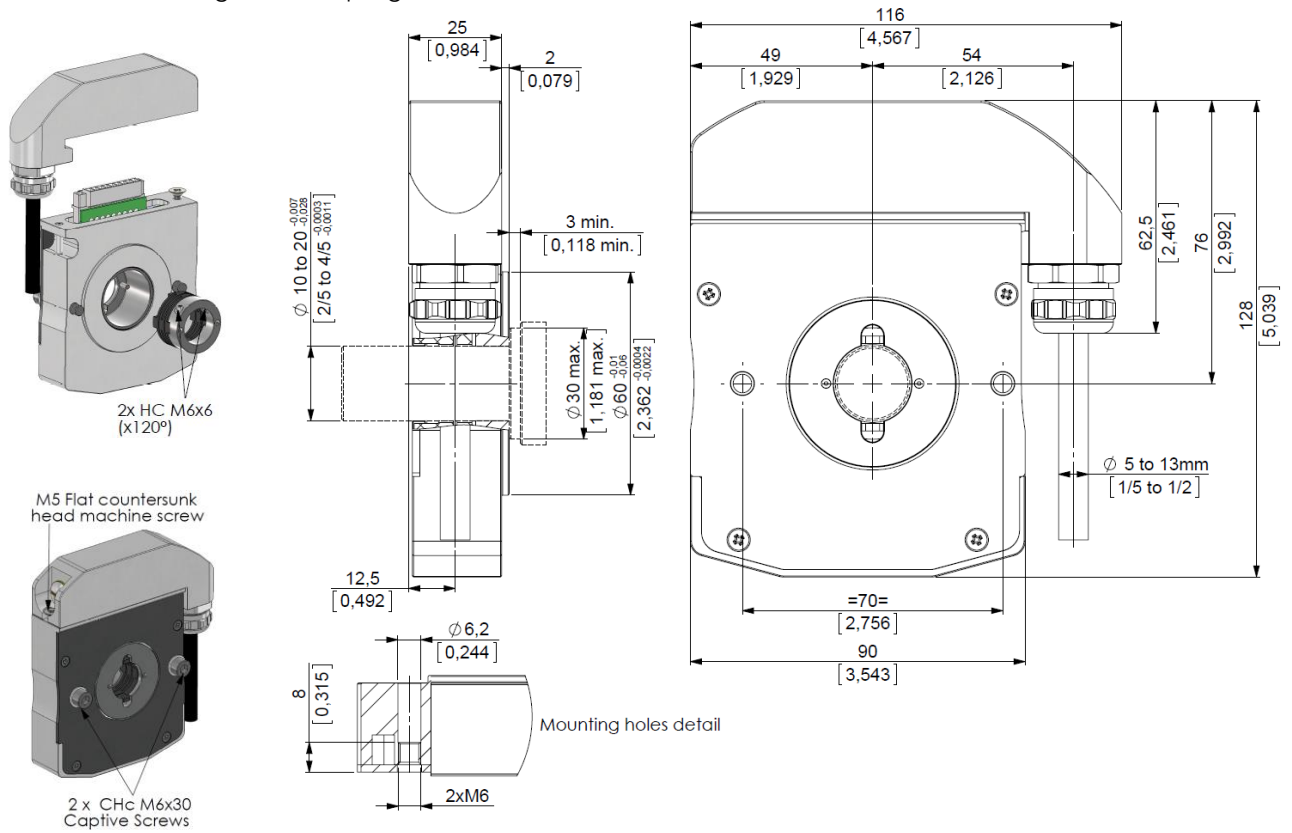
** continuous max. speed – 1/2 max. load – ISO 281, L_{10}

Available mechanics – shaft options:



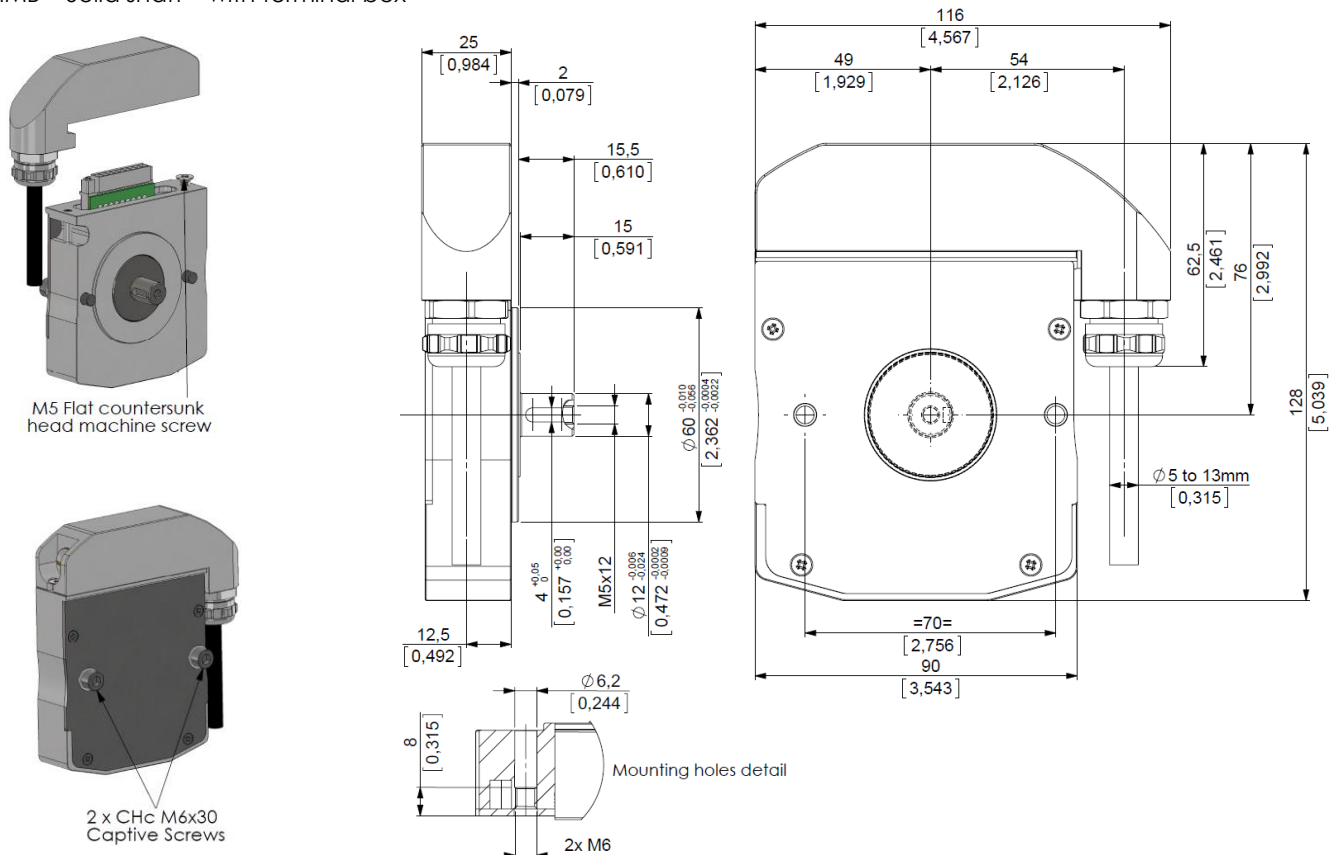
Dimensions

HHAB – Shaft with integrated coupling – with terminal box



Dimensions

HHMB – Solid shaft – with terminal box



Electrical Characteristics:

Version	Output signals	Resolution	Operating Voltage Vcl	Supply current (no loads)	Current per channel pair	Output Levels (Is=20mA)	Frequency capability	Short circuits proof	Reverse polarity tolerant	Wiring fault tolerant & Overvoltage protection	Temperature range
5PE	HTL	1 to 10000	11-30V --- 250mA	100mA	75mA	Low max: 1.5V High min: Vcl - 3.5V	Up to 300kHz	Yes	Yes	Yes	-40°C +85°C (!)
PP5			5-30V --- 250mA	75mA	40mA	Low max: 0.5V High min: Vcl - 2.5V	Up to 1MHz			No	-40°C +100°C (!)
RP2	TTL RS422		4.75-30V --- 250mA	75mA	40mA	Low max: 0.5V High min: 4V		Yes (except to Vcl)			

(!) UL listed: -20°C +80°C. Device must be supplied by a Class 2, LPS or SELV limited energy source.

Connection:

		-	+	A	B	Z	A/	B/	Z/	Ground
GX	Terminal box - 9 pins	1	2	3	4	5	6	7	8	9

Programmable possibility:

The programmable LP incremental encoder features a patented dynamic encoder resolution capability that allows users to easily program the encoder resolution to any value between 1 and 10000 counts per turn. The LP allows for virtually unlimited resolution variations. Index calibration and index position can also be programmed.

Using the simple programming interface software and USB interface cable, users can program the encoder resolution as needed. In the software, type the encoder resolution and click 'Program'. A new resolution is now programmed. It's that easy!

With the LP, resolution can be programmed and reprogrammed at any time by the user.

For users with multiple requirements, LP can be kept in stock and programmed as needed.

LP programming cable has to be ordered separately: consult us.

LP Incremental Ordering Options

Use this diagram, working from left to right to construct your model number (Example : **HHAB_E6//PP5X//XPROG//GXR//U6******)

HH_B	--	//	---	X	//	XPROG	//	GXR	//	--	--**
TYPE:	SHAFT BORE:		VOLTAGE/ OUTPUT:	CHANNELS:		CYCLES/ TURN:		OUTPUT TERMINATION:		HUB:	ANTI-ROTATION:
HHUB = hollow shaft	E5 = 5/8" E6 = 3/4" E8 = 1" 30 = 30mm		PG5 = 5-30V voltage and push-pull output	X = Programmable channels		XPROG = Programmable resolution		GXR = Terminal box		U3 = With insulated sleeve	B2** = Anti-rotation fork (always with HHUB and HHKB)
HHKB = blind shaft										U5 = Blind sleeve	**** = No anti-rotation for HHAB and HHMB
HHAB = hollow shaft with integrated coupling	E6 = 3/4" 14 = 14mm 20 = 20mm		RP2 = 4.75-30V voltage and RS422 output	Factory setting = AA/ BB/ ZZ/ B before A Z gated A&B		Factory setting = 1024PPR				U6 = Through sleeve	
HHMB = solid shaft	E3 = 3/8" 12 = 12mm									** = no sleeve	

Stainless steel option available.

Anti-rotation accessory: M9230-04/xxx Ball end tether arm (xxx = length in cm) to be ordered separately.

BEI SENSORS Europe

9, rue de Copenhague
Espace Européen de l'Entreprise-Schiltigheim
BP 70044 - 67013 STRASBOURG Cedex France
Tel: +33 (0)3-88-20-80-80 | Fax: +33 (0)3-88-20-87-87
email: info@beisensors.com

BEI SENSORS North America

1461 Lawrence Dr | Thousand Oaks, CA 91320 USA
Tel: 800-350-2727 or 805-968-0782
Fax: 800-960-2726 or 805-968-3154
email: beisales@beisensors.com
www.beisensors.com

Datasheets provided by Sensata Technologies, Inc., its subsidiaries and/or affiliates (“Sensata”) are solely intended to assist third parties (“Buyers”) who are developing systems that incorporate Sensata products (also referred to herein as “components”). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, valuation, and judgment in designing Buyer’s systems and products. Sensata datasheets have been created using standard laboratory conditions and engineering practices. Sensata has not conducted any testing other than that specifically described in the published documentation for a particular datasheet. Sensata may make corrections, enhancements, improvements, and other changes to its datasheets or components without notice.

Buyers are authorized to use Sensata datasheets with the Sensata component(s) identified in each particular datasheet. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER SENSATA INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN. SENSATA DATASHEETS ARE PROVIDED “AS IS”. SENSATA MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE DATASHEETS OR USE OF THE DATASHEETS, EXPRESS, IMPLIED, OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. SENSATA DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO SENSATA DATASHEETS OR USE THEREOF.

All products are sold subject to Sensata’s terms and conditions of sale supplied at www.sensata.com. SENSATA ASSUMES NO LIABILITY FOR APPLICATIONS ASSISTANCE OR THE DESIGN OF BUYERS’ PRODUCTS. BUYER ACKNOWLEDGES AND AGREES THAT IT IS SOLELY RESPONSIBLE FOR COMPLIANCE WITH ALL LEGAL, REGULATORY, AND SAFETY-RELATED REQUIREMENTS CONCERNING ITS PRODUCTS, AND ANY USE OF SENSATA COMPONENTS IN ITS APPLICATIONS, NOTWITHSTANDING ANY APPLICATIONS-RELATED INFORMATION OR SUPPORT THAT MAY BE PROVIDED BY SENSATA.

Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA

CONTACT US

Regional head offices:

United States of America

Sensata Technologies

Attleboro, MA

Phone: 508-236-3800

E-mail: support@sensata.com

Netherlands

Sensata Technologies Holland B.V.

Hengelo

Phone: +31 74 357 8000

E-mail: support@sensata.com

China

Sensata Technologies China Co., Ltd.

Shanghai

Phone: +8621 2306 1500

E-mail: support@sensata.com

Copyright © 2023 Sensata Technologies, Inc.