

LEINE  LINDE



INDUSTRIAL 600 SERIES

ABSOLUTE POSITION ENCODERS



Small but tough

When the need of a small encoder for harsh environments is of importance, the absolute inductive 600 series is the right choice. It is built to meet the requirements in environments where vibrations, moisture, interference, heat and cold are common. Depending on the application the encoder is available with either anodized aluminum or stainless steel enclosure. Moreover, the encoder is equipped with robust bearings, which makes it one of the most robust Ø58 mm encoder on the market and provides a long encoder service life.

Resolution up to a total of 31 bit multiturn

With the 600 series absolute encoder it is possible to get exact positioning since each position within the revolution of the encoder is made up of a unique code, allowing the shaft's exact position to be read directly on start-up. The total resolution for a 31 bit encoder is equivalent to 524 288 unique positions on each individual revolution, multiplied by 4096 distinguishable revolutions.

Stainless steel for increased robustness

The 600 series complies to ATEX for usage within the zone 2/22. The inductive 600 series in stainless steel has a high resistance to corrosion and therefore suitable in demanding environments such as those common within marine and offshore applications or where aggressive liquids are used.

Robustness in its essence

Sustainable

Market leading vibration and shaft load resistance.

Encapsulation

Ingress protection class IP67 for protection against dust and liquids. Verified for use in salt water environments.

Resolution

High singleturn and multiturn resolution versions of the encoder available.

Shaft and flange

- Hollow shaft, either blind or through-going for fixing with a stator coupling. Shaft dimension: Ø12 mm.
- Solid shaft, either round or face for fixing with a flange of either synchro or clamping type. Shaft dimensions: Ø6 mm and Ø10 mm.

Enclosure

- Anodized aluminium or
- Stainless steel A4, AISI 316L/EN 1.4404



Explosion-protection



II 3 G Ex nA T4 X
II 3 D Ex tD A22 IP6X T120°C X

Connection

- M23 or M12 connectors
- Cable glands or premounted cable

Fieldbus interfaces



Serial interfaces

SSI



– with additional 1 Vpp outputs

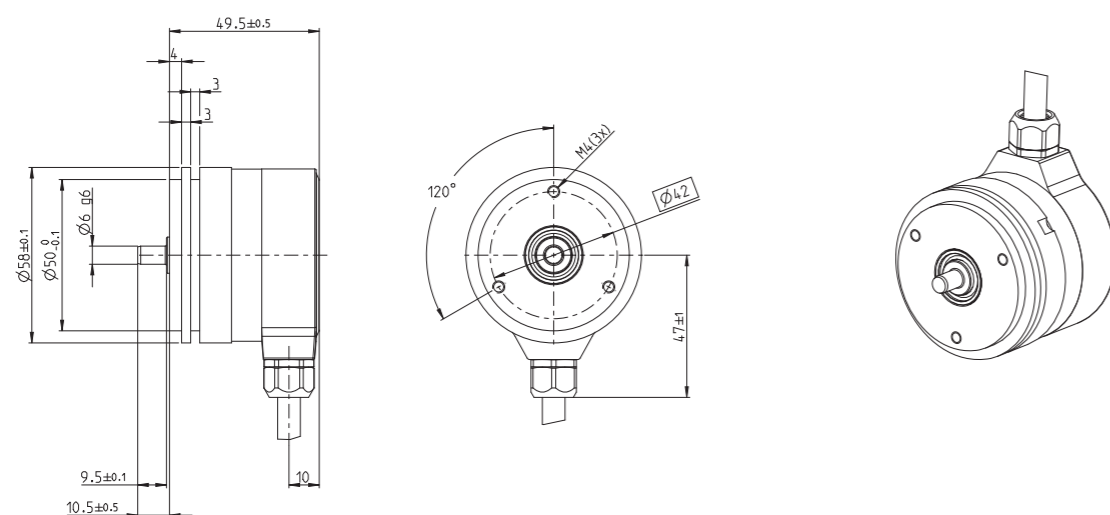
Note that some features described in this overview may only be available in certain combinations. Please refer to page 9 for more details.

Mechanics

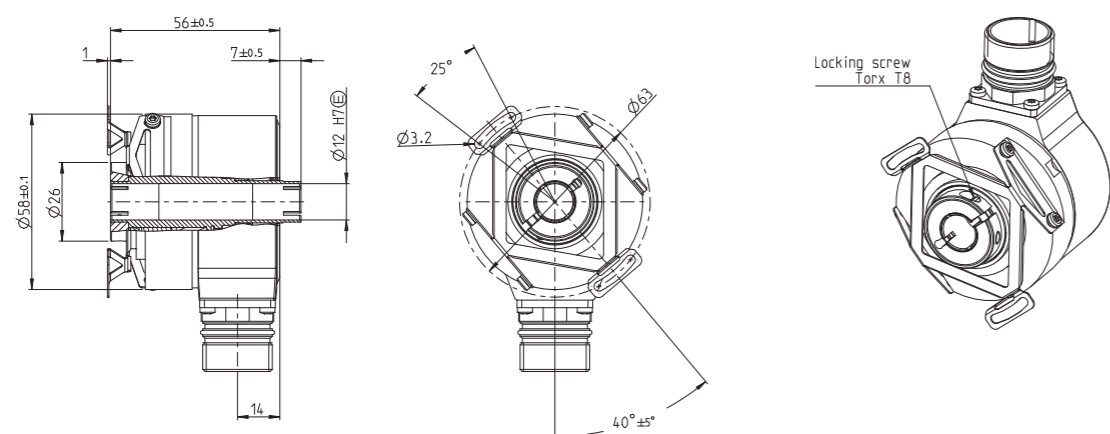
The 600 series features a robust and compact design with connection through cable glands, M12 or M23 connectors. This spread offers an overview of the different mechanical variants available in the 600 series. Other variants can be created according to the code key on page 9.

Serial interface encoders

ISA 608 with synchro flange and pre-mounted cable

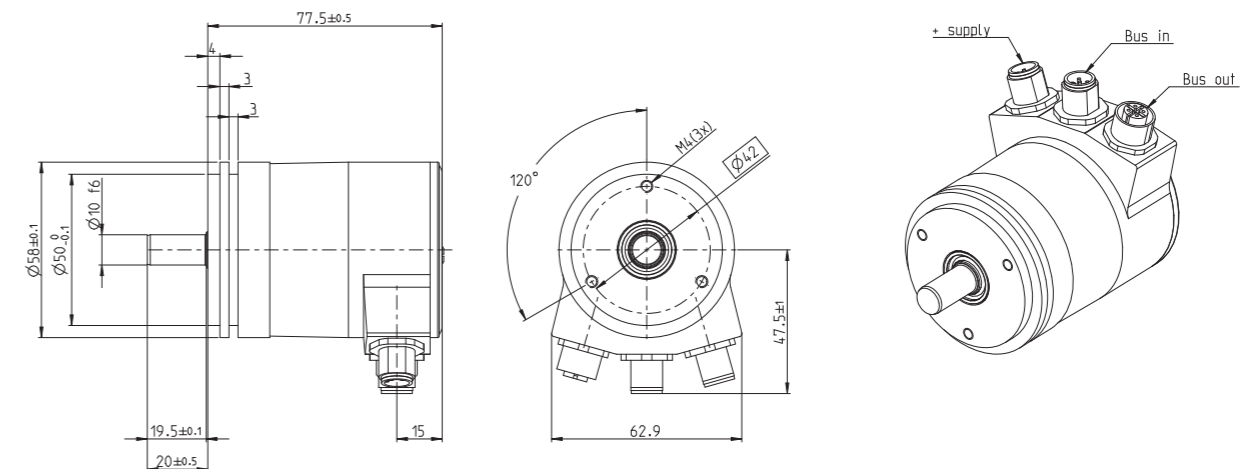


IHA 608 with stator coupling and M23 connector

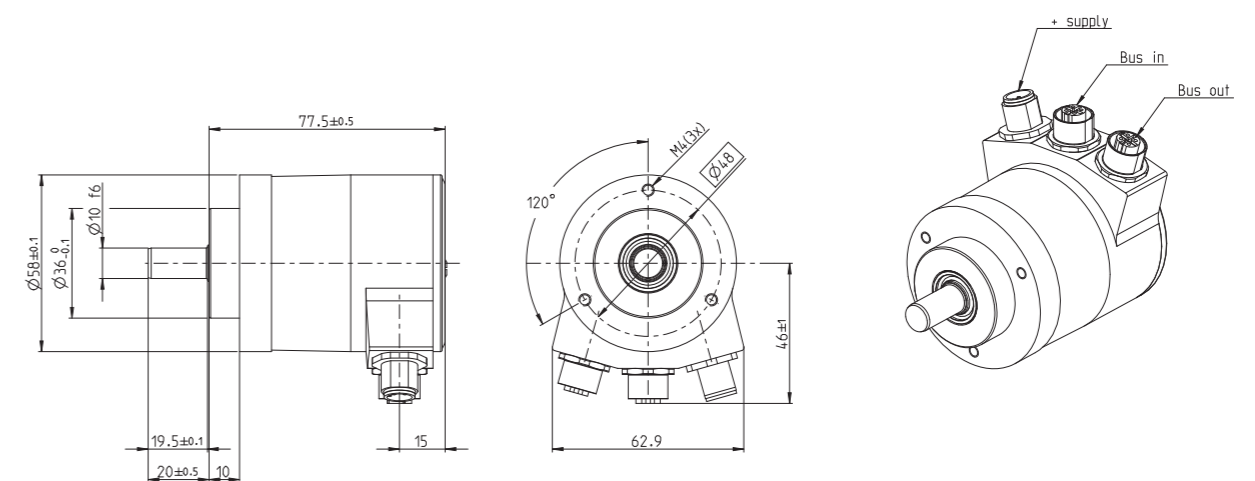


Fieldbus interface encoders

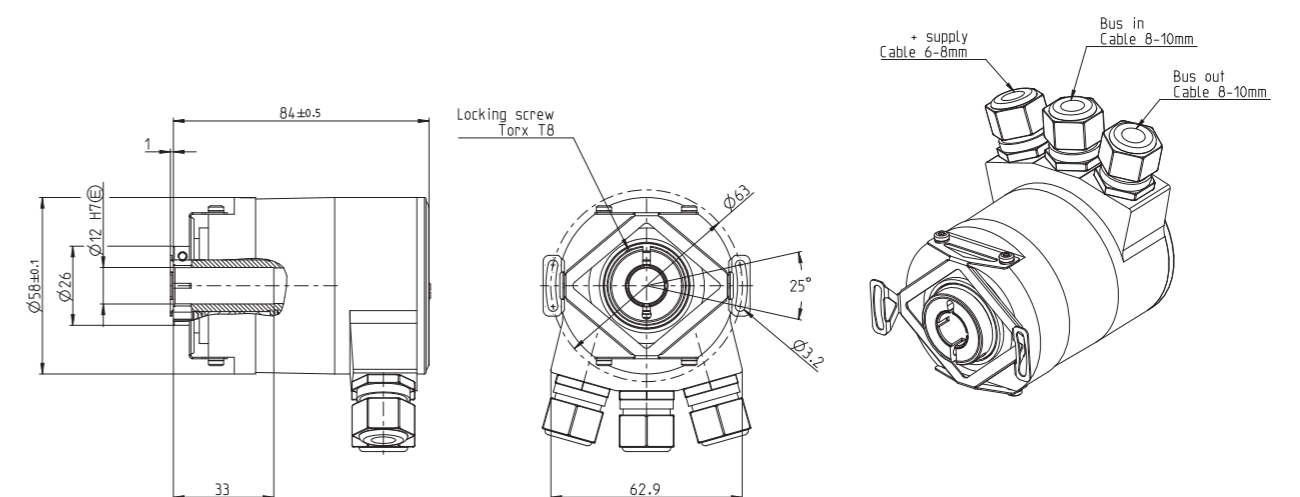
ISA 608 with synchro flange and 3 x M12 connectors



ISA 638 with clamping flange and 3 x M12 connectors



IHA 608 with stator coupling and 3 x cable glands



Interfaces

Serial

SSI

Synchronous Serial Interface is a digital point-to-point interface. It provides uni-directional communication at speeds up to 1.0 MHz by the use of only four wires.

SSI

EnDat 2.2

The EnDat 2.2 interface is a digital, bidirectional interface for encoders. It is capable of transmitting position values from absolute encoders, as well as reading and updating information stored in the encoder.

EnDat 2.2

Fieldbus

PROFIBUS

The 600 series support the encoder profiles 3.062 (DVPO) and 3.162 (DVP2) which contains of functions such as preset, scaling and code sequence. The encoder profile DVP2 also adds isochronous data exchange and slave-to-slave functions.



PROFINET

PROFINET can in general be described as Ethernet-based PROFIBUS DP communication and contains of functions such as preset, scaling, code sequence, slave-to-slave and isochronous data exchange.



CANopen

The 600 series CANopen encoder support encoder profile DS-406 and is certified by the CIA (CAN In Automation) organization. Apart from the standard encoder functionality such as positioning, scaling and presetting commands, the encoder supports speed and acceleration read out as well as PDO mapping and LSS service.



DeviceNet

The 600 series also features support for DeviceNet protocol and the encoder functionality has been tested in compliance with the ODVA conformance test. The DeviceNet encoder supports profile revision 2 with the supported functionalities code sequence, preset, velocity and scaling.



Code key

Inductive 600 series

Shafts

S = Solid shaft
H = Hollow shaft

Enclosure

0 = Anodized aluminium
3 = Stainless steel (A4)

Resolution

73 = Singleturn 13 bit
79 = Singleturn 19 bit
85 = Multiturn 25 bit (13 + 12 bit)
81 = Multiturn 31 bit (19 + 12 bit)

Shaft size

0 = Solid shaft Ø6mm round
1 = Solid shaft Ø6 mm with face
2 = Solid shaft Ø10 mm round
3 = Solid shaft Ø10 mm with face
4 = Blind hollow shaft Ø12 mm
5 = Through-going hollow shaft Ø12 mm (only for SSI, EnDat)

Flange

6 = Solid shaft with synchro flange
7 = Solid shaft with clamping flange
8 = Hollow shaft with stator coupling

Electronics and connection

Electronics

09 = SSI Binary, with 1 Vpp 32 ppr
10 = SSI Binary
11 = SSI Binary
12 = SSI Gray, with 1 Vpp 32 ppr
13 = SSI Gray
14 = SSI Gray
15 = EnDat 2.2, with 1 Vpp 32 ppr
16 = EnDat 2.2
17 = EnDat 2.2
18 = PROFIBUS
19 = PROFIBUS
20 = PROFINET
21 = CANopen
22 = CANopen
23 = DeviceNet
24 = DeviceNet

Connection

M23 connector 17 pin
Pre-mounted cable 1.5 m
Pre-mounted cable, specify length xx m
M23 connector 17 pin
Pre-mounted cable 1.5 m
Pre-mounted cable, specify length xx m
M23 connector 17 pin
Pre-mounted cable 1.5 m
Pre-mounted cable, specify length xx m
3 x M12 connectors
Cable gland radial direction
3 x M12 connectors
3 x M12 connectors
Cable gland radial direction
2 x M12 connectors
Cable gland radial direction

Other resolutions available upon request.



Performance

Technical data (based on IHA 608 PROFIBUS)

Operating temperature	-40..+80 °C
Ingress protection class [IEC 60529]	IP67
Vibration [IEC 60068-2-6]	≤ 300 m/s ²
Shock [IEC 60068-2-27]	≤ 2000 m/s ²
Cover material	Anodized aluminium
Weight	340 g
Shaft load (axial / radial)	100 N / 140 N
Rotational speed max	12000 rpm
Shaft material	Stainless steel
Power supply	9-36 Vdc
Polarity protected	Yes
Output signal	PROFIBUS DP
Supported profile	Profile 3.062 (DVPO) and 3.162 (DVP2)
Current consumption	95 mA at 24 Vdc
Max. current consumption	150 mA at 24 Vdc

The 600 series complies to the ATEX directive 94/9/EC:
EX II 3 G Ex nA T4 X
EX II 3 D Ex tD A22 IP6X T120°C X

Accessories

We have a wide range of accessories, from different variants of cables for the right connectivity to couplings suitable for your application.

Gateways

For use in applications where the need of a gateway is necessary for handling signals due to distance, surroundings or other disturbances. For connection with EnDat encoder.

CRG PROFIBUS Robust DIN-rail-mounted gateway between EnDat and PROFIBUS.

CRG CANopen Robust DIN-rail-mounted gateway between EnDat and CANopen.

CRG DeviceNet Robust DIN-rail-mounted gateway between EnDat and DeviceNet.

For further information regarding our gateways and for our total range of the accessories, please visit our website www.leinelinde.com or contact your nearest Leine & Linde office.

Other solutions

Encoders with additional 1 Vpp signals, 512 ppr

The optical absolute encoder with additional 1 Vpp has an output of analogue sinusoidal signals of 512 ppr, which makes it possible to use the encoder in safety-critical applications where detection is required of extremely small movements.

Encoders with additional square wave signals

Leine & Linde offer absolute encoder with additional incremental square wave signals, such as HTL and RS422.

Programmable SSI

The SSI programmable 600 series encoder contains the following programmable parameters that can be set via PC software: preset, code sequence, code type, data format and scaling parameters.



For more information about our encoder series please visit our webpage, www.leinelinde.com. Datasheets for our encoders are to be found in the Product Finder at the webpage or contact your nearest Leine & Linde office for further information.



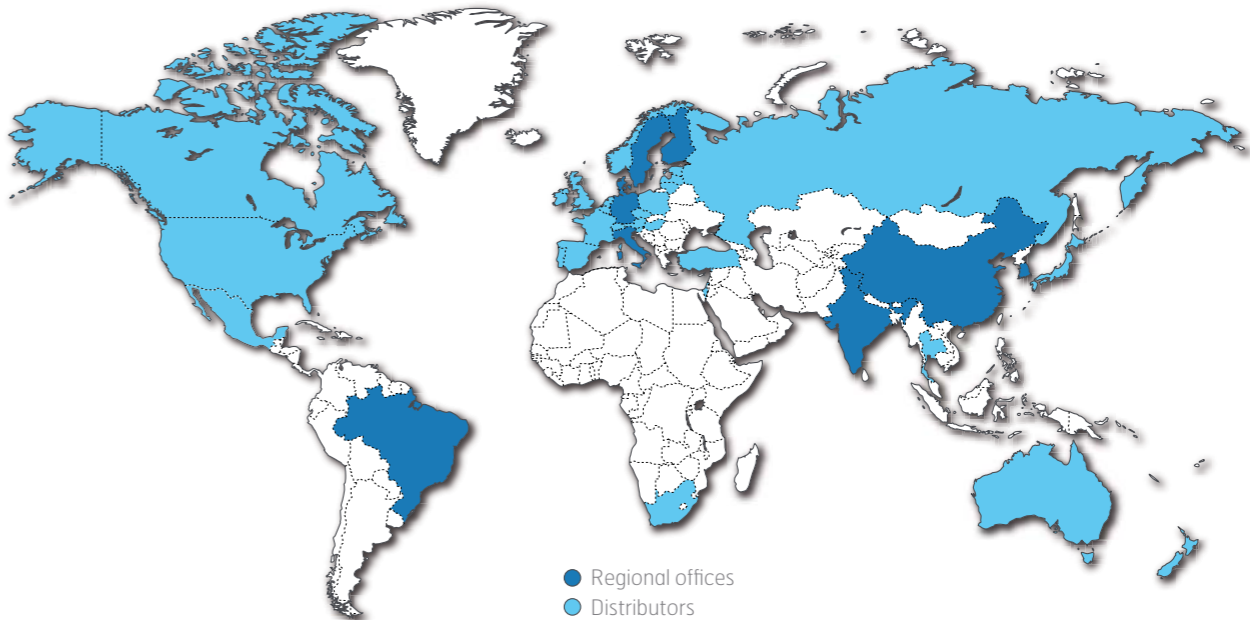
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Leine & Linde's worldwide presence. Read more at www.leinelinde.com.





Through local presence we support our customers, wherever they are, with a high level of availability and service.

Call us at +46-(0)152-265 00.

The best encoders are those you never have to think about. Those that simply do their job – year after year. Leine & Linde develops and manufactures customised encoder solutions for demanding environments, advanced measuring systems for accurate feedback of speed and position.

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