HENGSTLER

安装说明书

增量型编码器型号 EI40

前言

这个安装说明书提供编码器连接和开始使用的步骤说明。你可以从我们的编码器样本中得到更多的信息。

安全和操作说明

- EI40 系列增量型编码器是按照电气工程标准生产的有质量保证的产品。装置按照安全守则的要求从工厂发货。
  为维持这个条件和确保无故障运行，请遵守这个文件的技术规格。
- 必须由有资质的电工进行安装操作!
- 装置一定要在技术数据规定的范围内使用。
- 一定不能超过最高工作电压!
  这个装置被设计符合 VDE 0160，防护等级 III。
  为避免设备结构携带电流的危险，设备必须在安全额定电压 (SELV) 下使用，并且必须在等电位联接区域。
- 应用领域：工业过程和控制系统。
  连接端子的过电压必须被限定在过电压种类 II 范围内。
- 请避免对外壳的冲击（特别是对编码器的轴）和编码器轴的轴向与径向过载!
- 只有使用合适的联轴器，轴编码器的精度和耐用性才能得到保证。
- 只有和标准类型的电缆和插头一起使用才能达到高质量的 EMC 指标。当使用屏蔽电缆时，屏蔽层必须被连接到地。同样电源电缆也应该被完全屏蔽。如果不可能作到这些，你必须采取适当的滤波措施。
- 安装环境和接线都会影响编码器的 EMC 性能，因此安装者必须确保整个设备（装置）的 EMC。
- 电源线上的瞬时峰值电压必须小于 1000V。
- 在安装操作期间,请注意在静电危险区域的插头和电缆的 ESD 保护。
- 指定最大轴负载被赋予以下的限制：
  – 在 35% 的负载下可以转动 1×10^{10} 转（典型）。
  – 在 100% 的负载下可以转动 1×10^{8} 转（典型）。
- 只能使用在种类 II 的电路中。

连接图

功能描述	线径 ømm	颜色
VCC	0.14	红色
A	0.14	白色
B	0.14	绿色
Z	0.14	黄色
GND	0.14	黑色
$\overline{A}$	0.14	粉色
$\overline{B}$	0.14	兰色
$\overline{Z}$	0.14	橙色

[1] 标准配置编码器屏蔽层不与外壳连接

警告！ 接线请注意极性 —— 错误接线可能烧坏编码器。

机械参数

安装法兰	圆形法兰[1]，标准法兰[1]
轴径	实心轴 6 和 8mm
绝对最大轴载	径向 30N (6.5lbs), 轴向 15N (3.3lbs)
最高转速	6,000 RPM
启动转矩	IP 50 ≤ 0.2Ncm, IP 65 ≤ 1Ncm;
防护等级	IP50 或 IP65
工作温度	–20...+85℃
存储温度	–25 ... +85℃
抗振动 (DIN EN 60068–2–6)	100 m/s² (10 ... 2000 Hz)
抗冲击 (DIN EN 60068–2–27)	1000 m/s² (6 ms)
连接类型	2m 标准电缆
外壳	铝
重量	60g

[1] 使用 M3 螺钉固定

订购信息

型号	脉冲数[1]	电源电压	法兰	防护等级	轴
EI40	0100 0200 0360 0500 0600 0720 1000 1024 2000 2500	A 直流 5V E 直流 5–30V[2]	R 圆形法兰 S 标准法兰	1 IP50 2 IP65[3]	1 6mm 2 8mm

输出	连接	电缆长度选项	屏蔽选项
R 驱动器输出 (5VDC) 电源电压 E (DC 5–30V) ,可选： K 推挽输出 (5–30VDC) M 驱动器输出 (5–30VDC输入, 5V 输出) I HTL驱动器输出 (5–30VDC) C 集电极开路输出 (5–30VDC) S 高性能驱动芯片输出 (5–30VDC)	A 轴向电缆[3] B 径向电缆	默认电缆长度 2米 X 电缆长度 x 米	缺省屏蔽不接壳 G 屏蔽接壳

[1] 其他脉冲数可根据要求定制。

[2] 电源电压5–30VDC的编码器具有电源反向和过压保护，负载短路和浪涌保护功能。

[3] IP65和轴向电缆出线的编码器订货周期长，订购前请与厂家联系确认。

例如：EI40/0360ES.11KB, 360PPR, 电源电压5–30VDC,标准法兰, IP50, 轴径6mm，推挽输出，径向电缆，电缆长度默认2m。

电气参数

设计标准	符合 DIN VDE 0160, 防护等级 III, 污染等级 2, 过压等级 II
电源电压 (SELV)	驱动器型 (R)：5V ± 10% 驱动器型 (M)：5 ~ 30VDC[1] 电源输入，5VDC输出 推挽型 (K)：5 ~ 30VDC [1] HTL驱动器型 (I,S)：5 ~ 30VDC[1] 集电极开路型 (C)：5 ~ 30VDC[1]
最大空载电流	40mA(5VDC),100mA(5–30VDC)
标准输出版本	驱动器型 (R,M)，HTL驱动器型 (I,S)：A,B,Z,$\overline{A}$,$\overline{B}$,$\overline{Z}$ 推挽型(K)，集电极开路型(C)：A,B,Z
最大输出频率	200kHz

[1] 电源电压5–30VDC的编码器具有电源反向和过压保护，负载短路和浪涌保护功能。

*** 技术数据发生变更恕不通知。**

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Installation manual

Incremental Encoders Type EI40

Introduction

These installation instructions are provided for the connection and starting procedure of your shaft encoders. You can get further informations from our Shaft Encoders Catalogue.

Safety and Operating Instructions

- The incremental encoders of the type EI40 model series are quality products manufactured in accordance with established electrical engineering standards. The units have been delivered from the factory in perfect conformance to safety regulations.
  To maintain this condition and to ensure trouble–free operation, please observe the technical specifications of this document.
- Installation and mounting may only be performed by an electrotechnical expert!
- The units may only be operated within the limits specified by the technical data.
- Maximum operating voltages must not be exceeded!
  The units are designed complying with VDE 0160, protection class III.
  To prevent dangerous structure–borne currents, the equipment has to be run on safety extra–low voltage (SELV) and must be in an area of equipotential bonding.
- Application: Industrial processes and control systems.
  Overvoltage at the connecting terminals must be limited to the values within overvoltage category II.

Connection diagram

Function	wire ømm	Color
VCC	0.14	Red
A	0.14	White
B	0.14	Green
Z	0.14	Yellow
GND	0.14	Black
$\overline{A}$	0.14	Pink
$\overline{B}$	0.14	Blue
$\overline{Z}$	0.14	Orange

[1] Screen don't been connected to encoder housing (standard).

Warning! The wiring please note the polarity, otherwise the false wiring possibly burns out the encoder.

Mechanical data

Mounting	round flange[1], standard flange[1]
Shaft diameter	solid 6 and 8mm
Absolute max. shaft load	radial 30N(6.5lbs), axial 15N(3.3lbs)
Max. speed	6,000 RPM
Torque	IP 50≤0.2Ncm, IP 65≤1Ncm;
Protection class	IP50 or IP65
Operating temperature	–20...+85℃
Storage temperature	–25 ... +85℃
Vibration performance (DIN EN 60068–2–6)	100 m/s^2 (10 ... 2000 Hz)
Shock resistance (DIN EN 60068–2–27)	1000 m/s^2 (6 ms)
Connection	2m standard cable
Housing	Aluminum
Weight	60g

[1] use threads M3 for fastening

Electrical data

General design	as per DIN VDE 0160, protection class III, contamination level 2, overvoltage class II
Supply voltage (SELV)	Line driver (R): 5V ± 10% Line driver (M): 5...30VDC power supply, 5VDC output. Push–pull (K): 5...30VDC[1] RS422A (I,S): 5...30VDC Open collector (C): 5...30VDC
Max. current w/o load	40mA (5VDC), 100mA(5–30VDC)
Standard output versions	Line driver (R, M), RS422A (I,S): A, B, Z, $\overline{A}$, $\overline{B}$, $\overline{Z}$ Push–pull (K), Open collector (C): A, B, Z
Max. pulse frequency	200kHz

[1] Pole and over–voltage protection, load short circuit and surge protection with supply voltage DC 5–30V.

- Please avoid shocks to the housing–especially to the encoder shaft–and axial or radial overload to the encoder shaft.
- Maximum accuracy and durability of our shaft encoders is only granted when using suitable couplings.
- The high–quality EMC–specifications are only valid together with standard–type cables and plugs. When using screened cables, the screen must broadly be connected with ground. Likewise, the voltage–supply cables should entirely be screened. If this is not possible you will have to take appropriate filtering measures.
- Installation environment and wiring are influential on the encoder's EMC: Thus the installer must secure EMC of the whole facility (device).
- Transient peaks on the power supply leads are to be limited by the preconnected power unit to a maximum of 1000 V.
- In electrostaticly threatened areas please take care for neat ESD–protection of plug and connecting cable during installation work.
- Specified maximum shaft loads are only given under restrictions:
  – Full bearing life of 1 x 10^{10} revolutions (typ.) will be reached at 35% of full rated shaft load
  – a bearing life of 1 x 10^8 revolutions (typ.) will be reached at 100% of full rated shaft load.
- For use class II circuits only.

ORDERING INFORMATION

Type	PPR[1]	Supply voltage	Flange	Protection	Shaft
EI40	**0100** **0200** **0360** **0500** **0600** **0720** **1000** **1024** **2000** **2500**	**A** 5VDC **E** 5–30VDC[2]	**R** Round Flange **S** Standard Flange	**1** IP50 **2** IP65[3]	**1** 6mm **2** 8mm

Output	Connection	Option1: Cable length	Option2: Screen
R Line driver(5DVC) Supply voltage (E 5-30VDC) is available for: **K** Push–pull (5~30VDC) **M** Line driver (5~30VDC In, 5V Out) **I** RS422A (5~30VDC) **C** Open collector (5~30VDC) **S** High performance RS422A(5–30VDC)	**A** Cable, Axial **B** Cable,[3] Radial	**Default cable length 2m** **X** Cable length X m	**Default screen don't connect with encoder housing** **G** Connect with housing

[1] Other number of pulses on request.

[2] Pole and over–voltage protection, load short circuit and surge protection with supply voltage DC 5–30V.

[3] Long lead time for encoder of IP65 or axial cable, so please contact us before ordering.

Example: EI40/0360ES.11KB, 360PPR, supply voltage 5–30VDC, standard flange, IP50, 6mm shaft diameter, push–pull output, 2m radial cable.

*** Technical specifications subject to change without notice.**