# Absolute Encoder



## Comercial Information

| | |
|---|---|
| Manufactured by | IVO |
| Ref.Manufacturer | GA 241 SSI synchro flange |
| Distributed by | IVO |
| Ref. Distributer | GA241.B33R2 |

## General Features

- Resolution 13 bit, 8192 steps/revolution
- Binary-code
- Synchronous-Serial Interface
- Self-diagnostic
- High code switching speed 800 kHz
- Electronic zero point setting
- The following is monitored during operation:
  - check of the code steadiness
  - whether admissible signal frequency is exceeded
  - LED failure, aging
  - whether receiver has failed
  - code disc, broken glass

## Technical Specifications

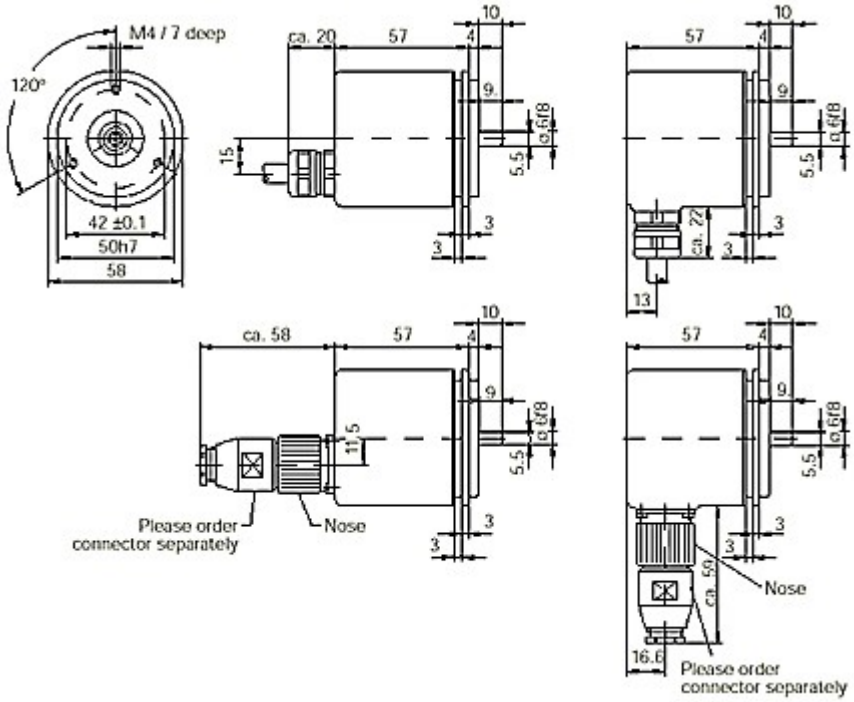
| Ambient conditions | |
|---|---|
| Ambient temperature | -20 ... +70 °C |
| Storage temperature | -20 ... +85 °C |
| Protection to | |
| Shaft w/o seal | IP 54 |
| Shaft with seal | IP 65 |
| Relative humidity | Max. 95 %, non-condensing |
| Endurance | |
| vibration | IEC 68 Section 2 - 6<br>≤ 100 m/s² 16 - 2000 Hz |
| Shock | IEC 68 Section 2 - 27<br>≤ 2000 m/s² / 6 ms |
| interference immunity | EN 50082-2<br>EN 61000-4 - 2 to 4 Severity grade 3 |
| Emitted interference | EN 50081-2 |

## Electrical Specifications

- Supply voltage 10 ... 30 VDC with reverse voltage protection
- Current consumption Max. 50 mA (w/o load) for 24 VDC
- SSI pulse frequency 62.5 kHz up to 1.5 MHz
- Mono-flop time 20 µs
- Pulse space Min. 25 µs
- Code switching speed for sampling 800 kHz
- Deviation of sampling measuring step 0.025 degrees at 400 kHz 0.05 degrees at 800 kHz
- Electric connector The electric connector must not be plugged on or removed whilst under voltage.

| | |
|---|---|
| 1 UB | Supply voltage of encoder |
| 2 GND | Housing contact of encoder.<br>The specific GND voltage is UB. |
| 3 Pulse + | Positive SSI pulse input. Pulse+ produces a current loop together with Pulse-. A current of approximately 7 mA in direction of the input Pulse+ generates a logical 1 in positive logic. |
| 4 Data + | Positive serial data output of differential line driver. A High level at the output logically corresponds to 1 in positive logic. |
| 5 ZERO | Reset input for setting a zero point anywhere within entire resolution. The zero setting is triggered by a High pulse (pulse duration ≥ 100 ms) imperatively after the sense of direction has been chosen (UP/$\overline{\text{DOWN}}$). Assign to GND for maximum interference immunity after zero setting. |
| 6 Data - | Negative serial data output of differential line driver. A High level at the output logically corresponds to a 0 in positive logic. |
| 7 Pulse - | Negative SSI pulse input. Pulse - produces a current loop together with Pulse +. A current of approximately 7 mA in direction of the input Pulse - generates a logical 0 in positive logic. |
| 8 $\overline{\text{DATAVALID}}$ | Diagnostic output $\overline{\text{DATAVALID}}$<br>Jumps within data word, e.g. due to defective LED or photoreceiver, are displayed via the DP-output. Low level indicates an error.<br>Attention: Disturbing pulses must be filtered by the follow-up electronic. |
| 9 UP/$\overline{\text{DOWN}}$ | Input for counting up and down.<br>If open circuited, it is set to High. UP/$\overline{\text{DOWN}}$ High means increasing output data if shaft rotates clockwise when looking at the flange. UP/$\overline{\text{DOWN}}$ Low means increasing values if shaft rotates counter-clockwise when looking at the flange. |
| 10 NC | Contact without function. For max. interference immunity assigned internally to GND. |
| 11 / 12 | Not assigned. |

## Mechanical Specifications




**Mechanical data**

| | |
|---|---|
| RPM value | |
| mechanical | Max. 10,000 RPM |
| electrical | Max. 6,000 RPM |
| Starting-torque | |
| w/o seal (IP54) | < 0.010 Nm |
| with seal (IP65) | < 0.015 Nm |
| Shaft loading | |
| axial | < 20 N |
| radial | < 40 N |
| Inertia torque | 1.45 x $10^{-6}$ $kgm^2$ |
| Material | |
| Housing | Aluminium |
| Flange | Aluminium |
| Weight | Approximately 250 g |

## Cablage Notice