



OFFICIAL DISTRIBUTOR

RGB ELEKTRONIKA AGACIAK CIACIEK SP.J.
ul. Jana Długosza 2-6
51-162 Wrocław

+48 71 325 15 05
biuro@rgbelektronika.pl

ENCODER RON 225 18000 RON22518000 TTL 18000 PPR +5V REPLACEMENT
ID23622



PRECIZIKA
METROLOGY



A90H

PHOTOELECTRIC ANGLE ENCODER



Photoelectric angle encoder A90H is used to measure angular position of the key machine components, industrial robots, comparators, rotary tables and to establish an informational link with DCC, NC or Digital Readout Units. It provides information about the value and direction of motion. The encoder is used in automatic control, on-line gauging, process monitoring systems, etc.

Three versions of output signals are available:

- A90H-A - sinusoidal signals, with amplitude approx. 1 V_{pp};

- A90H-AV - sinusoidal signals, with amplitude approx. 1 V_{pp};
- A90H-F - square-wave signals (TTL) with integrated subdividing electronics for interpolation x1, x2, x5, x10, x20, x25, x50 and 100.

The modification with distance-coded reference marks is available.

The encoder has two coupling versions: P- via shaft collar and H – via central screw.

MECHANICAL DATA

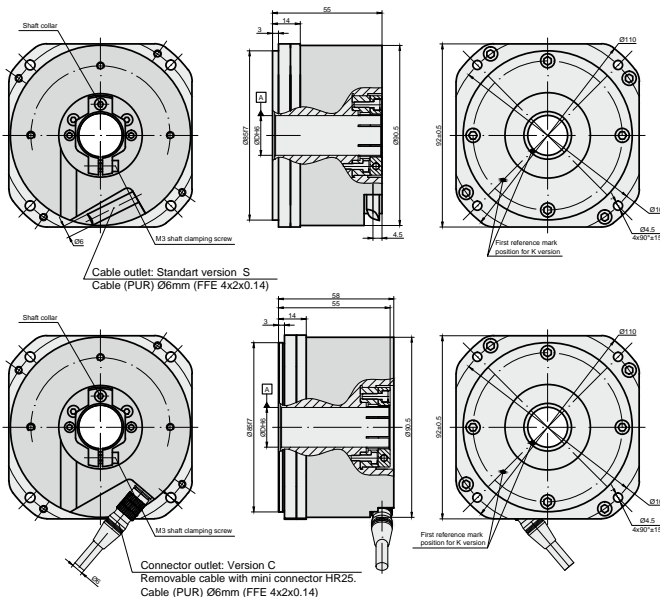
| | |
|---|--|
| Line number on disc (z) | 18000 |
| Number of output pulses per revolution for A90H-F | Z x k, where k = 1, 2, 3, 4, 5, 8, 10, 20, 25, 50, 100 |
| Reference signal: - standard (S) - distance-coded (K) | one per shaft revolution 36 per shaft revolution |
| Permissible mech. speed | ≤ 3000 rp |
| Max. operating speed (depends on number of output pulses) | 600 to 1000 rpm |
| Accuracy grades | ±5.0 arc. sec; ±7.5 arc. sec |
| Starting torque at 20°C | ≤ 0.08 Nm |

Permissible shaft run out:

- axial 0.02 mm
- radial ±0.02 mm

| | |
|---------------------------------------|---|
| Rotor moment of inertia | < 0.6x10 ⁻⁴ kgm ² |
| Protection (IEC 529) | IP64 |
| Maximum weight without cable | 1.2 kg |
| Operating temperature | 0...+70 °C |
| Storage temperature | -30...+85 °C |
| Maximum humidity (non condensing) | 98 % |
| Permissible vibration (55 to 2000 Hz) | ≤ 100 m/s ² |
| Permissible shock (5 ms) | ≤ 300 m/s ² |

MOUNTING TYPE P (CLAMP)

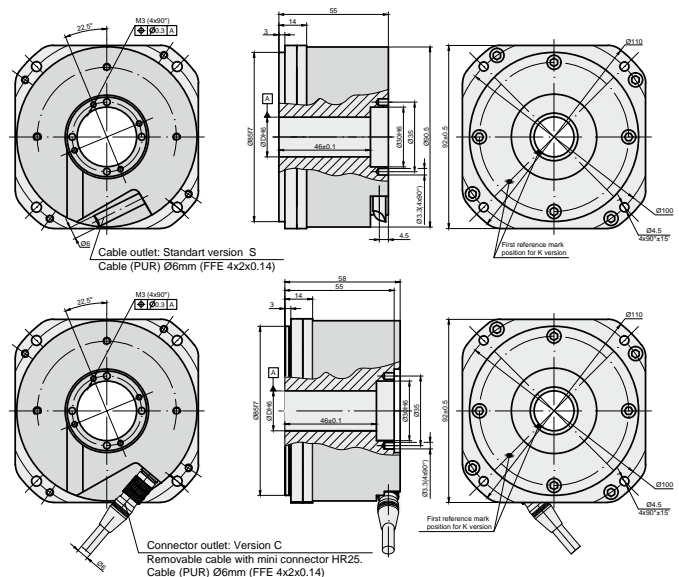


øD, mm

20

22

MOUNTING TYPE H (SCREW)



øD, mm

20

22

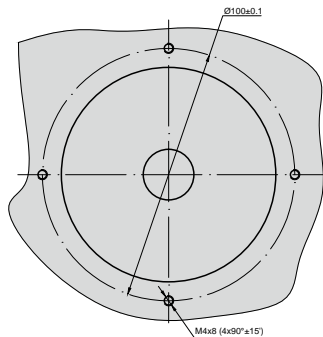
ELECTRICAL DATA

| VERSION | A90H-A \sim 11 μ App | A90H-AV \sim 1 Vpp | A90H-F \square TTL |
|------------------------------------|--|---|---|
| Supply voltage (U_p) | +5 V \pm 5% | +5 V \pm 5% | +5 V \pm 5%; |
| Max. supply current (without load) | 100 mA | 120 mA | 150 mA |
| Light source | LED | LED | LED |
| Incremental signals | Two sinusoidal I_1 and I_2 Amplitude at 1 k Ω load: - $I_1 = 7 \dots 16 \mu$ A - $I_2 = 7 \dots 16 \mu$ A | Differential sine +A/-A and +B/-B Amplitude at 120 Ω load: - A = 0.6...1.2 V - B = 0.6...1.2 V | Differential square-wave $U1/\overline{U1}$ and $U2/\overline{U2}$. Signal levels at 20 mA load current: - low (logic "0") \leq 0.5 V - high (logic "1") \geq 2.4 V |
| Reference signal | One quasi-triangular I_0 peak per revolution. Signal magnitude at 1 k Ω load: - $I_0 = 2 \dots 8 \mu$ A (usable component) | One quasi-triangular +R and its complementary -R per revolution. Signals magnitude at 120 Ω load - R = 0.2...0.8 V (usable component) | One differential square-wave $U0/\overline{U0}$ per revolution. Signal levels at 20 mA load current: - low (logic "0") < 0.5 V - high (logic "1") > 2.4 V |
| Maximum operating frequency | (-3 dB) \geq 160 kHz | (-3 dB) \geq 180 kHz | 160-2500 kHz (depends on interpolation factor) |
| Direction of signals | I_2 lags I_1 for clockwise rotation (viewed from encoder mounting side) | +B lags +A for clockwise rotation (viewed from encoder mounting side) | $U2$ lags $U1$ with clockwise rotation (viewed from encoder mounting side) |
| Maximum rise and fall time | - | - | < 0.2 μ s |
| Standard cable length | 1 m, without connector | 1 m, without connector | 1 m, without connector |
| Maximum cable length | 5 m | 25 m | 25 m |
| Output signals | | | |

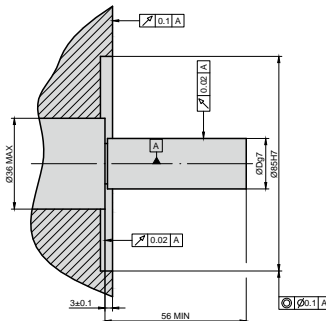
Note:

- Maximum working rotation speed (with proper encoder counting) is limited by maximum operating frequency and maximum mechanical rotation speed.
- If cable extension is used, power supply conductor cross-section should not be smaller than 0.5 mm².

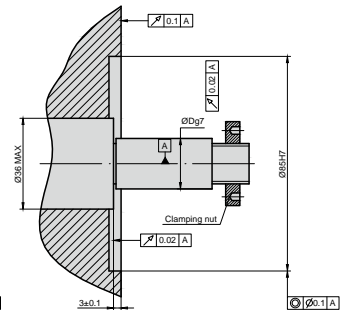
MOUNTING REQUIREMENTS



MOUNTING TYPE P (CLAMP)



MOUNTING TYPE H (SCREW)



ACCESSORIES

| | | | | | | | | |
|--------------------------------|-------------------------------|-----------------------------|-------------------------------|----------------------------|------------------------------|--------------------------------|-------------------------------|-------------------------------------|
| CONNECTORS FOR CABLE | B12 12-pin round connector | C9 9-pin round connector | C12 12-pin round connector | D9 9-pin flat connector | D15 15-pin flat connector | RS10 10-pin round connector | ONC 10-pin round connector | HR25 8-pins round mini connector |
| DIGITAL READOUT DEVICES | CS3000 | | | | | CS5000 | | |
| EXTERNAL INTERPOLATOR | NK | | | | | | | |

ORDER FORM

| OUTPUT SIGNAL VERSION: | PULSE NUMBER PER REVOLUTION: | REFERENCE SIGNAL: | ACCURACY GRADE: | DIAMETER OF SHAFT HOLE: | MOUNTING TYPE: | CABLE OR CONNECTOR OUTLET: | CABLE LENGTH: | CONNECTOR TYPE: |
|------------------------|------------------------------------|---|--|-------------------------|------------------------|--|---|--|
| A AV F | 1...18000 ... 1...1800000 | S - one per revolution K - 36 per revolution, distance-coded | 50 - \pm 5.0 arc.sec. 75 - \pm 7.5 arc.sec. | 20 - 20mm 22 - 22mm | P - clamp H - screw | S - version S (cable outlet) C-version C (connector outlet) | AR01 - 1m AR02 - 2m AR03 - 3m | W - without connector B12 - round, 12 pins C9 - round, 9 pins C12 - round, 12 pins D9 - flat, 9 pins D15 - flat, 15 pins RS10 - round, 10 pins ONC - round, 10 pins |
| ORDER EXAMPLE: | 1) A90H-A-18000-K-50-20-P-S-AR01/W | | | | | | | |