

MAIN EXPORT COUNTRIES:



The company under the name "Precizika Metrology" began work after the change of name of the Lithuanian - American Joint Venture "Brown & Sharpe - Precizika". The company has a proud history of old traditions in the leadership of design and production of metrological equipment. Its workforce has been involved for over fifty years in the supply of measuring technology and systems to automate factories as well as in the development of optical scale manufacturing technology.

In 2000, the production process was certified to fully meeting the requirements of EN ISO 9002:1994, in 2003 – EN ISO 9001:2000.

The company's goal is to consistently supply high quality products and services to meet customer demands on a timely basis. The company's main products are linear and angular glass scale gratings, and the linear and rotary displacement measuring systems.

JSC "Precizika Metrology" represents worldwide known companies and suppliers of measuring equipment, CNC centers, executes installation and services of them, trains the users, and executes upgrading of used CMM and manual cutting machine-tools.

# A110

PHOTOELECTRIC ANGLE ENCODER



The semi-precision photoelectric rotary encoder A110 is used to establish an informational link between industrial robots, comparators and 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:

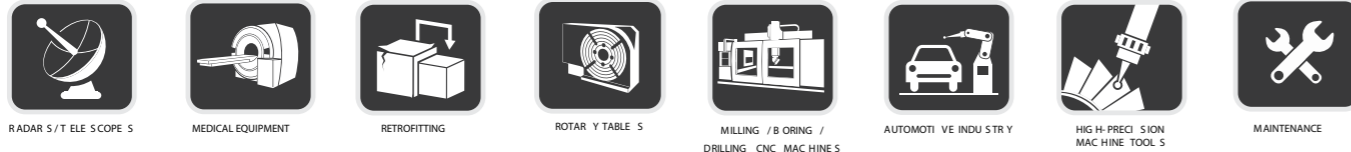
- A110-A - sinusoidal signals, with amplitude approx. 11  $\mu$ App;
- A110-AV - sinusoidal signals, with amplitude approx. 1 Vpp;
- A110-F - square-wave signals (TTL), with integrated subdividing electronics for interpolation x1, x2, x5, x10, x20, x25, x50 and x100.

The modification with distance-coded reference marks is available.



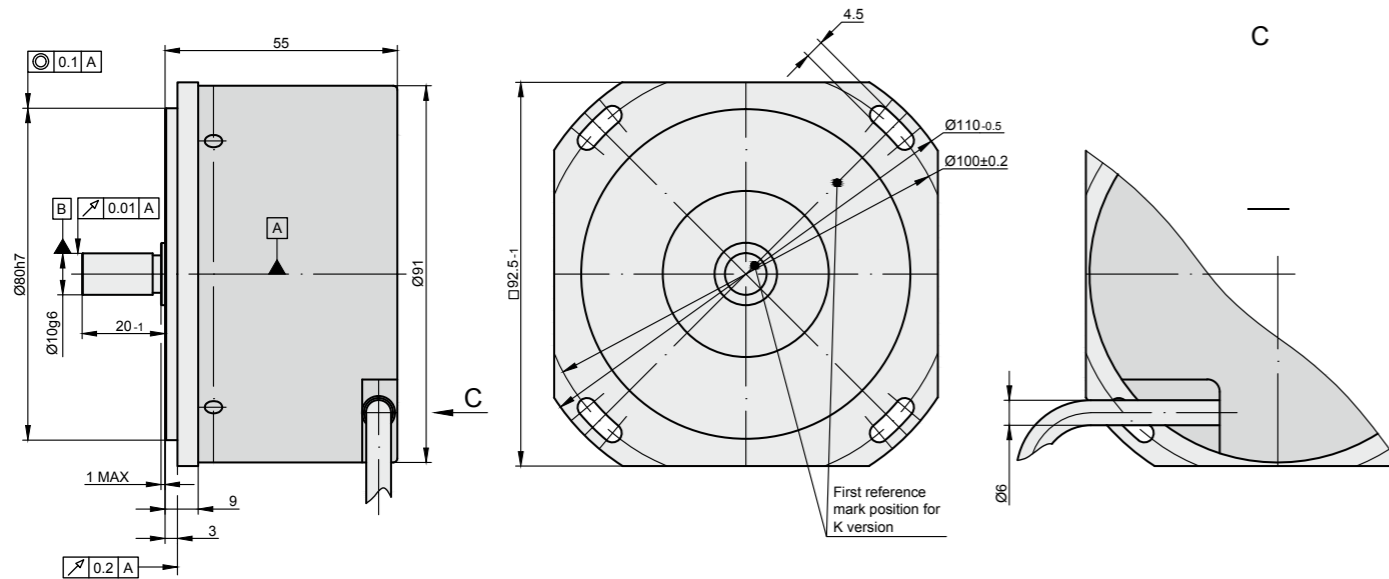
# A110

## RECOMMENDED APPLICATIONS



## MECHANICAL DATA

Line number on disc (z)	18000	Accuracy	$\pm 7.5; \pm 5.0$ arc. sec
Number of output pulses per revolution for A90H-F	18000; 36000; 90000; 180000; 360000; 450000; 900000; 1800000	Starting torque at 20 °C	$\leq 0.01$ Nm
Reference signal: - standard (S) - distance-coded (K)	one per shaft 36 per shaft revolution	Rotor moment of inertia	$< 20 \times 10^{-6}$ kgm <sup>2</sup>
Maximum shaft speed	5000 rpm	Protection (IEC 529)	IP64
Maximum shaft load: - axial - radial (at shaft end)	10 N 10 N	Maximum weight without cable	0.7 kg
		Operating temperature	0...+50 °C
		Storage temperature	-30...+80 °C
		Maximum humidity (non condensing)	98 %
		Permissible vibration	$\leq 100$ m/s <sup>2</sup>
		Permissible shock (6 ms)	$\leq 300$ m/s <sup>2</sup>



## ELECTRICAL DATA

VERSION	A110-A $\sim 11 \mu\text{App}$	A110-A V $\sim 1 \text{ Vpp}$	A110-F $\square$ TTL
Supply voltage (U <sub>p</sub> )	+5 V $\pm 5\%$	+5 V $\pm 5\%$	+5 V $\pm 5\%$ ;
Max. supply current (without load)	80 mA	120 mA	120 mA
Light source	LED	LED	LED
Incremental signals	Two sinusoidal I <sub>1</sub> and I <sub>2</sub> Amplitude at 1 k $\Omega$ load: - I <sub>1</sub> = 7-16 $\mu\text{A}$ - I <sub>2</sub> = 7-16 $\mu\text{A}$	Differential sine +A/-A and +B/-B Amplitude at 120 $\Omega$ load: - A = 0.6-1.2 V - B = 0.6-1.2 V	Differential square-wave U1/U1 and U2/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 <sub>0</sub> peak per revolution. Signal magnitude at 1 k $\Omega$ load: - I <sub>0</sub> = 2-8 $\mu\text{A}$ (usable component)	One quasi-triangular +R and its complementary -R per revolution. Signals magnitude at 120 $\Omega$ load - R = 2-8 V (usable component)	One differential square-wave U0/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	180 kHz	(160 x k) kHz, k-interpolation factor
Direction of signals	I <sub>2</sub> lags I <sub>1</sub> for clockwise rotation (viewed from shaft side)	+B lags +A for clockwise rotation (viewed from shaft side)	U2 lags U1 with clockwise rotation (viewed from shaft side)
Maximum rise and fall time	-	-	$< 0.5 \mu\text{s}$
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 mm<sup>2</sup>.

## ACCESSORIES

CONNECTOR FOR CABLE	B12 12-pin round connector	C9 12-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
DIGITAL READOUT DEVICES	CS3000				CS5500		
COUPLING	SC70						
EXTERNAL INTERPOLATOR	NK						

## ORDER FORM

OUTPUT SIGNAL VERSION:	SIGNAL:	PULSE NUMBER PER REVOLUTION:	REFERENCE SIGNAL:	ACCURACY GRADE:	CABLE LENGTH:	CONNECTOR TYPE:	COUPLING:
A AV F		18000 ... 1800000	S - one per revolution, K - 36 per revolution, distance coded	50 $\pm 5.0$ arc.sec. 75 $\pm 7.5$ arc.sec.	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	0 - without coupling 1 - with coupling
ORDER EXAMPLE:	1) A110-F-18000-K-50-AR02/C12-0						