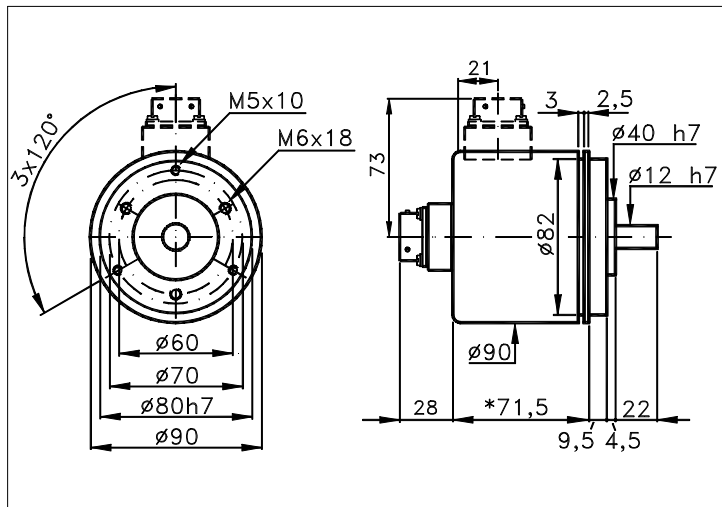


**SINGLE TURN  
ABSOLUTE  
ENCODER  
390A**

Absolute single turn encoder, from 2 to 14 bits, for operation in rolling mills and other extremely adverse ambients.  
All-metal housing with double 'O-ring' and very strong shaft.

Absolute single turn  
page: 01.390A 1/2  
data sheet IA021 E00

Measures without tolerance according to UNI ISO 2768-mk



\* 96,5 for code different from Gray code.

**TECHNICAL FEATURES AND POSSIBLE CONFIGURATIONS**

- **Output codes**.....: Gray, Binary, Excess, BCD, Custom
- **Max pulses/rev**.....: 16384 (14 bits)
- **Power supply Vcc**.....: 5±5%, 15±5%, 8+24, 18+28, 10+30
- **Max consumption**.....: 200+400 mA accord. to bits (\*)
- **Light source**.....: LED with >= 100000 h life
- **Optical sensors**.....: Phototransistors
- **Max frequency**.....: 25 kHz (\*)
- **Operating temperature**..: 0 ÷ +70 °C (\*)
- **Storage temperature**...: -30 ÷ +85 °C (\*)
- **Burn-in @ +75 °C**.....: 72 h (\*)
- **Up/down commutation**...: OK
- **Mechanical zero search**: No
- **Output stages**.....: (-) NPN open coll.10mA(std)  
(KK) NPN open coll.70mA + PTC  
(KP) NPN open emitt.70mA+ PTC  
(B) Push-p. 70mA+PTC 1+12bit(1)
- **Pre output interface**...: (-) Parallel (standard)  
(S) Serial SSI (1)  
(A) Analogic 'current' (2)  
(V) Analogic 'voltage' (2)
- **Electronic options**....: (F)Led zero  
(for parallel interf.) (L)Latch (3)  
(P)Parity  
(M)Multiplexer
- **Connections**Radial (R): CV CD4 CM5 SM5 CM3 SM3 CL (4)  
Axial (-) SL CH (\*)
- For the description of connections see 'ORDERING CODE' on page 2.
- **Base**.....: Anodized aluminium (\*)
- **Cover**.....: Anodized aluminium (\*)
- **Weight**.....: 800 g
- **Shaft**.....: Stainless steel (\*)
- **Max.rad/axial load**....: 15 Kg
- **IP output side**.....: see 'CONNECTIONS' on page 2
- **IP shaft side**.....: std.66 | sealed 67 | low torq.-
- **Contin. max RPM**...(\*\*): 6000 | 3000 | -
- **Starting torque**.. gcm.: 90 | 150 | -
- **Impact resistance**.....: 40 G (11 ms)
- **Vibration resistance**...: 12 G (10 ÷ 2000 Hz)
- **Ball bearings life**....: 1,5x10<sup>9</sup> revolutions  
(@ 1000 rev/m with load of 1/4 maximum allowed)
- (\*) Custom options
- (\*\*) Intermittent max RPM + 30% of continuous max RPM
- (1) Only for Gray and Excess codes
- (2) Only for power supply 15V or 18+28V and resol. 102
- (3) Standard for Binary and BCD codes
- (4) Cv (cable): up to 10 bits (1000 pulses) BCD code, up to 13 bits (8192 pulses) Gray, Bin., Excess co

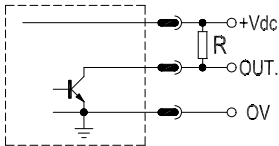
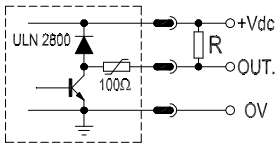
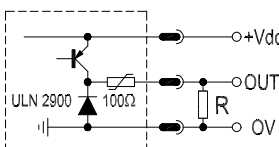
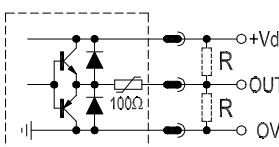
**POSSIBLE OPTIONS**

CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
A	High temperature	X	Custom options	G	Tropicalization
L	Low temperature	H	Different shaft Ø	Z	Sealed bal bearing
Y	Unbreakable disk	P	Compressed air attack		



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ELECTRONIC OUTPUT	INTERFACE	PARALLEL OPTIONS
» (-) NPN open coll.10mA(std) 	» (-) Parallel (standard) The angular value is present on the output connector in a 'parallel' form. The number of conductors is proportional to the resolution and the type of selected code. Any electronic output stage can be applied.	» (F)Led zero Designed for setting the encoder position with mechanical position. Led lights up at zero value with clockwise increasing code, at max. value with contrary clockwise.
» (KK) NPN open coll.70mA + PTC 	» (S) Serial SSI The data output (available only with Gray or Excess code) is controlled by an external clock. The angular position's value is first stored into the encoder and then transmitted outside starting from the MSB. The standard of transmission is RS422.	» (L)Latch When Latch input is set to 0 Vdc the outputs at Gray code disc level are 'frozen'; in such a way detections are carried out in stable conditions. For this reason Latch input is standard for Binary and BCD codes.
» (KP) NPN open emitt.70mA+ PTC 	» (A) Analogic 'current' » (V) Analogic 'voltage' Encoder's angular position with 10 bits resolution (1024 div./rev) is converted in an analog (mA or V) quantity proportional to its value. In the standard version (360° of rotation) Iu=1+20mA Vu=0+10V.	» (P)Parity An electronic circuit generates a signal (Parity) in such a way that the number of high level outputs is always odd; then there isn't any condition with all low level outputs. This option allows to carry out automatic checkout of the output stages.
» (B) Push-p. 70mA+PTC 1+12bit 		» (M)Multiplexer The outputs must be enabled by an external 'enable' signal; this method provides the connection in parallel of several encoders on a single bus. The number of conductors is proportional to the resolution and to the type of selected code.

### ORDERING CODE

Possible shaft Ø ( n ) Ø n upon req ( 10 ) Ø 10 ( 127 ) Ø 12,7 ( 14 ) Ø 14 ( ) ( )	(G) Gray (B) Binary (D) BCD (E) Excess (X) Upon request (-) Inter.A or V	(-) Parallel (standard) (S) Serial SSI (A) Analogic 'current' (V) Analogic 'voltage'	( CV ) 1 m long cable IP65 ( CM5 ) Conn.26 pin PT02A16-26P IP65 ( SM5 ) Conn.26 pin PT02E16-26P IP66 ( CM3 ) Conn.23 pin PT02A16-23P IP65 ( SM3 ) Conn.23 pin PT02E16-23P IP66 ( CL ) Conn.10 pin MS310A18-1P IP65 ( SL ) Conn.10 pin MS310R18-1P IP66 ( CH ) Conn. 12 pin Eml 121 IP65 ( CD4 ) Conn.25 pin DB25P IP64				
	(-) NPN open coll.10mA(std) (KK) NPN open coll.70mA + PTC (KP) NPN open emitt.70mA+ PTC (B) Push-p. 70mA+PTC 1+12bit		( ) ( )				
		Only for parallel interface					
MODEL	CODE	RESOLUTION	POWER SUPPLY	OUTPUT ELECTR.	INTERFACE	CONNECT.	OUTPUT
A 390A	G	256	5	-	- -	CV	R
OPTIONS	[*]				OPTIONS parallel interface	Axial Radial	(-) (R)
(A) High temperature (L) Low temperature (Y) Unbreakable disk (X) Custom options (H) Different shaft Ø (P) Compressed air attack (G) Tropicalization (Z) Sealed bal bearing ( )	[*] Other resolutions on customer's requirement	(5) 5 V ±5% (1828)18 ÷ 28 V (15) 15 V ±5% (1030)10 ÷ 30 V (824)8 ÷ 24 V (X) Upon requ.			(P)Parity (L)Latch (F)Led zero (M)Multiplexer		
		Cod. G, B, D: 8, 16, 32, 64, 128, 256, 512 Cod. G, B, : 1024, 2048, 4096, 8192, 16384 Cod. E, B, D: 10, 100, 500, 1000 Cod. E, B, D: 180, 360, 720, 900 Cod. E, B, : 1440, 1800, 2000, 2880, 3600, 4000					
							Product manufactured according to ISO EN 9001, supplied with CHECKING and CONFORMITY declaration with CE mark and with TWO (2) YEARS WARRANTY starting from delivery date.

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