

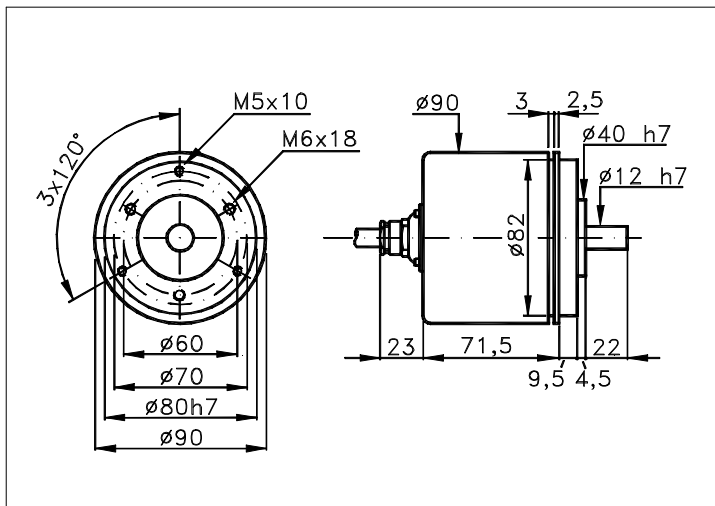
**INCREMENTAL  
ENCODER**

**90A**

ENCODER FOR OPERATION IN ROLLING MILLS AND OTHER EXTREMELY ADVERSE AMBIENTS. ALL-METAL CONTAINER WITH DOUBLE 'O-RING'. VERY STRONG SHAFT.

Family: **I**  
page: 03. 90A 1/2  
data sheet . II 019 E0A

Sized draw standard version: CW Measures without tolerance according to UNI ISO 2768-mk



**TECHNICAL FEATURES AND POSSIBLE CONFIGURATIONS**

- |                                                                |                                                                 |
|----------------------------------------------------------------|-----------------------------------------------------------------|
| - <b>Base</b> .....: ANODIZED ALUMINIUM (*)                    | - <b>Ball bearings life</b> ....: $1,5 \times 10^9$ revolutions |
| - <b>Cover</b> .....: ANODIZED ALUMINIUM (*)                   | - <b>Impact resistance</b> ....: 50 G x 11ms                    |
| - <b>Weight</b> .....: 800 g                                   | - <b>Vibration resistance</b> ..: 12 G (10 ÷ 2000 Hz)           |
| - <b>Shaft</b> .....: Ø 12 STAINLESS STEEL (*)                 | - <b>Power supply</b> .....: 5÷30V (see page 2)                 |
| - <b>Max.rad/axial load</b> ..: 15 kg                          | - <b>Operating temperature</b> : 0 ÷ 70 °C (*)                  |
| - <b>IP output side</b> .(°)..: see 'CONNECTION' of page 2     | - <b>Storage temperature</b> ...: -30 ÷ 85 °C                   |
| - <b>IP shaft side</b> .(°)> std. 66   sealed 67   low torq. - | - <b>N° of pulses/rev</b> .....: 1 ÷ 25000                      |
| opt. type (page 2)> standard   Z                               | - <b>Max frequency</b> .....: 100 kHz (300 option)              |
| - <b>Contin. max RPM</b> (**)> 6000   3000   -                 | - <b>Max consumptions mA</b> ..: std 120 line driver 180 (*)    |
| - <b>Starting torque gcm</b> > 90   150   -                    | - <b>Light source</b> .....: LED with >= 100000 h life          |

(°) IP according to CEI EN 60529, EN 60529, IEC 529

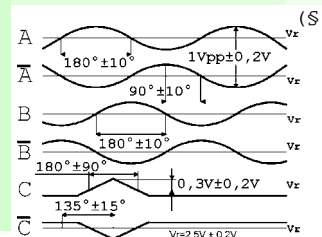
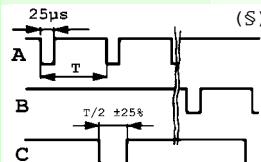
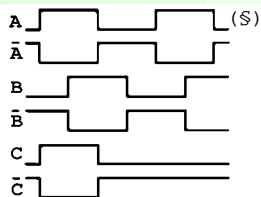
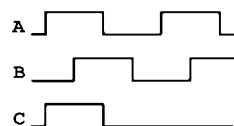
(\*) custom options

(\*\*) intermittent max RPM + 30% of continuous max RPM

**ELECTRONICS**

| CODE | DESCRIPTION   | mA | CODE | DESCRIPTION   | mA | CODE | DESCRIPTION  | mA | CODE | DESCRIPTION   | mA |
|------|---------------|----|------|---------------|----|------|--------------|----|------|---------------|----|
|      | STANDARD NPN  | 10 | N    | DRIVER 26LS31 | 30 | D    | DISCRIMINAT. | 70 | Y    | SINUSOID.1Vpp | 10 |
| K    | NPN OPEN COLL | 10 | T    | TTL 7404      | 10 |      |              |    |      |               |    |
| Q    | NPN           | 70 | C    | DRIVER 88C30  | 20 |      |              |    |      |               |    |
| R    | NPN OPEN COLL | 70 | L    | 2x PUSH-P.PRO | 70 |      |              |    |      |               |    |
| P    | PNP           | 70 | M    | 2x PUSH-PULL  | 70 |      |              |    |      |               |    |
| U    | PNP OPEN COLL | 70 |      |               |    |      |              |    |      |               |    |
| B    | PUSH-PULL PRO | 70 |      |               |    |      |              |    |      |               |    |
| H    | PUSH-PULL     | 70 |      |               |    |      |              |    |      |               |    |

(S) Clock-wise output rotation (see shaft).



Tolerance between phases ± 25°, symmetry ± 15°

(S) Clock-wise output rotation (see shaft).



ELCIS s.r.l. Via Rosa Luxembourg 12/14 10093 COLLEGNO (TO) ITALY  
Phone: +39 011 715577/78 a.r.  
MAIL: ELCIS s.r.l. P.O.Box 43 10093 COLLEGNO (TO) ITALY

\* <http://www.elcis.com>  
\* e-mail: [info@elcis.com](mailto:info@elcis.com)  
\* Fax: +39 011 712613

N.I.F.: B-87969416



**GUEMISA**

C/ Del Electrodo, 68 Oficina-23  
28522 Rivas Vaciamadrid (Madrid)  
Tfno.: 91 764 21 00 - [info@guemisa.com](mailto:info@guemisa.com)

| POSSIBLE OPTIONS |                     |      |                         | POSSIBLE CONNECTIONS |    |     |     |
|------------------|---------------------|------|-------------------------|----------------------|----|-----|-----|
| CODE             | DESCRIPTION         | CODE | DESCRIPTION             | CABLE                |    |     |     |
| L                | Low temperature     | C    | Low consumption         | CW                   |    |     |     |
| Y                | Unbreakable disk    | K    | Invert. phase A,B,Zero. |                      |    |     |     |
| Z                | Sealed ball bearing | J    | Zero logic combination  | CONNECTOR            |    |     |     |
|                  |                     | M    | Impregnated electronic  |                      |    |     |     |
| H                | Different shaft Ø   | A    | High temperature        | CM                   | SM | CL  | SL  |
|                  |                     | P    | Compressed air attack   | CE                   |    | C4  | CH  |
| S                | 160 KHz frequency   | Q    | Oil seal                |                      |    | CH5 | CI  |
| W                | 300 KHz frequency   | G    | Tropicalization         |                      |    |     |     |
|                  |                     |      |                         | CABLE END CONNECTOR  |    |     |     |
| X                | Custom options      |      |                         | VM                   | TM | VL  | TL  |
|                  |                     |      |                         | VE                   | VK | TK  | VN  |
|                  |                     |      |                         | VD5                  |    | VM5 | VM9 |
|                  |                     |      |                         |                      |    | VS  |     |
|                  |                     |      |                         | TERMINAL BOX         |    |     |     |
|                  |                     |      |                         |                      |    |     |     |

## ORDERING INFORMATION

| POSSIBLE SHAFT Ø     | STANDARD NPN          | CABLE           | CONNECTOR         | CABLE END CONNECTOR    |
|----------------------|-----------------------|-----------------|-------------------|------------------------|
| ( )                  | ( K ) NPN OPEN COLL   | IP65            |                   | IP65 encoder output    |
| ( )                  | ( Q ) NPN             |                 |                   |                        |
| ( )                  | ( R ) NPN OPEN COLL   | ( )             | ( CM ) 7c norm.   | ( VM ) 7c normal       |
| ( )                  | ( P ) PNP             | ( CW ) 1 m long | ( SM ) 7c sealed  | ( TM ) 7c sealed       |
| ( )                  | ( U ) PNP OPEN COLL   | ( )             | ( CL ) 10c norm.  | ( VL ) 10c normal      |
| ( n ) Ø n upon requ. | ( B ) PUSH-PULL PRO   |                 | ( SL ) 10c sealed | ( TL ) 10c sealed      |
|                      | ( H ) PUSH-PULL       |                 | ( CD ) 9c sub D   | ( VD ) 9c              |
| ( )                  | ( N ) DRIVER 26LS31   | TERMINAL BOX    | ( CH ) 12c ccw    | ( VH ) 12c anticlock.  |
| ( )                  | ( T ) TTL 7404        | IP00            | ( CH5 ) 12c cw    | ( VH5 ) 12c clock-wise |
| ( )                  | ( C ) DRIVER 88C30    | ( )             | ( CI ) 12c crimp. | ( VI ) 12c crimped     |
| ( )                  | ( L ) 2x PUSH-P.P.PRO |                 | ( CE ) 5c miniat  | ( VE ) 5c              |
| ( )                  | ( M ) 2x PUSH-PULL    |                 | ( )               | ( VK ) 17c normal      |
| ( )                  | ( D ) DISCRIMINAT.    |                 | ( )               | ( TK ) 17c sealed      |
| ( )                  | ( Y ) SINUSOID.1Vpp   |                 | ( C4 ) 4c screw   | ( VN ) 12c             |
| ( )                  | ( X ) CUSTOM OPTION   |                 | ( CH6 ) 12c cw    | ( VH6 ) 12c clock-wise |
| ( )                  |                       |                 | ( )               | ( VM5 ) 26c            |
| ( )                  |                       |                 |                   | ( VM9 ) 16c            |
| ( )                  |                       |                 |                   | ( VS ) 12c             |
| ( )                  |                       |                 |                   | ( VD5 ) 9c screened    |

| OPTIONS | MODEL      | PULSES/REVOL. (1) | POWER SUPPLY        | VERSION (2)                   | ELECTRONIC (2) | CONNECTION (3) | OUTPUT |
|---------|------------|-------------------|---------------------|-------------------------------|----------------|----------------|--------|
|         | <b>90A</b> | <b>500</b>        | <b>5</b>            | <b>BZ</b>                     | <b>N</b>       | <b>CW</b>      |        |
|         |            |                   | (Vcc)               |                               |                |                |        |
| ( L )   | ( C )      | 1 ÷ 25000         | ( 5 ) 5 V ±5%       | ( M ) Monodirectional         |                | AX             | ( )    |
| ( Y )   | ( K )      |                   | ( 824 ) 8÷24 V      | ( B ) Bidirectional           |                | RAD            | ( R )  |
| ( Z )   | ( J )      |                   | ( 1828 ) 18÷28 V    | ( BZ ) Bidirectional + zero   |                |                |        |
| ( )     | ( M )      |                   | ( 815 ) 8÷15 V      | ( MZ ) Monodirectional + zero |                |                |        |
| ( H )   | ( A )      |                   | ( 12 ) 12 V ±5%     |                               |                |                |        |
| ( )     | ( P )      |                   | ( 24 ) 24 V ±5%     |                               |                |                |        |
| ( )     | ( Q )      |                   | ( 1230 ) 12÷30/12 V |                               |                |                |        |
| ( S )   | ( G )      |                   | ( 8245 ) 8÷24/5 V   |                               |                |                |        |
| ( W )   | ( )        |                   | ( 1030 ) 10÷30 V    |                               |                |                |        |
| ( )     | ( )        |                   | ( 18285 ) 18÷28/5 V |                               |                |                |        |
| ( )     | ( )        |                   | ( 1530 ) 15÷30/15 V |                               |                |                |        |
| ( X )   | ( )        |                   | ( )                 |                               |                |                |        |

NOTE: FOR 88C30 MAX 15 Vdc

- (1) For further information see PULSES/REVOL. data sheet  
 (2) For further information see ELECTRONIC data sheet  
 (3) For further information see CONNECTION data sheet

Product manufactured according to UNI EN ISO 9001:2000,  
 supplied with CHECKING and CONFORMITY  
 declaration with CE mark and with TWO (2) YEARS  
 WARRANTY starting from delivery date.

ELCIS company has the right to make any changing without previous notice.

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ELCIS s.r.l. Via Rosa Luxembourg 12/14 10093 COLLEGNO (TO) ITALY  
 Phone: +39 011 715577/78 a.r.  
 MAIL: ELCIS s.r.l. P.O.Box 43 10093 COLLEGNO (TO) ITALY

\* <http://www.elcis.com>  
 \* e-mail: [info@elcis.com](mailto:info@elcis.com)  
 \* Fax: +39 011 712613