

TK60

solid shaft

Ø 63,5



Italsensor Quality System certified according to the UNI EN ISO 9001



## Features:

TK60 - robust incremental optical encoder suitable for different industrial applications, especially indicated for harsh environments. Thanks to its robust construction and high protection degree this model allows to operate in harsh environments where challenging ambient conditions such as dust, liquids, temperatures, shocks and vibrations are available, ensuring high reliability and long service life.

- **robust design for applications in harsh environments;**
- **high reliability and long service life;**
- **resolution up to 20.000 ppr; others on demand;**
- **high protection degree up to IP66;**
- **cable and connector outputs;**



## MECHANICAL SPECIFICATIONS/ CARATTERISTICHE MECCANICHE

Dimensions/ *Dimensioni*

Shaft loading/ *Carico sull'albero*

Shaft Rotation Speed/ *Numero giri*

Starting torque at 25°C/ *Coppia di partenza a 25 °C*

Moment of inertial/ *Momento di inerzia*

Bearing life/ *Vita dei cuscinetti*

Weight/ *Peso*

see drawings/ *vedi disegni*  
 axial/ *assiale* 200 N; radial/ *radiale* 200 N  
 12.000 RPM (short cycle time/ *brevi periodi*) 6.000 RPM (continuous/ *continui*)  
 2.000 turn/min with protection shaft/ *giri/min con asse stagno*  
 0,025 Nm; 0,040 Nm with proof shaft /*con asse stagno*  
 40 g cm<sup>2</sup>  
 5 x 10<sup>9</sup> rev. min./ *giri (minimo)*  
 ~ 0,45 kg

## ELECTRICAL SPECIFICATIONS/ CARATTERISTICHE ELETTRICHE

Resolution/ *Risoluzione*

Power supply/ *Alimentazione*

Output frequency/ *Frequenza in uscita*

Synchronous index output/ *Sincronismo di zero*

Supply current without load/ *Assorbimento in corrente*

Protection/ *Protezione*

20.000 ppr; others on demand/ 20.000 ppr; altri a richiesta  
 5 V; 24/5 V; 11÷30 V  
 up to 300 kHz/ *fino a 300 kHz*  
 on A default, B- A+B optional, TK661 A+B default/  
 su canale A predefinito - B- A+B a richiesta, TK661 A+B predefinito  
 150 mA max  
 short circuit protection, no limit duration (only output LD2 and PP2);  
 against inversion of polarity (except 5V);  
 contro il cortocircuito (solo elettronica LD2 e PP2);  
 contro inversione di polarità (escluso 5V)

## MATERIALS/ MATERIALI UTILIZZATI

Flange/ *Flangia*

Housing/ *Corpo*

Shaft/ *Albero*

aluminum non corroding/ *in alluminio anticorrosivo*  
 Aluminum painted with inhibiting treatment 180 °C/ *alluminio verniciato con*  
 trattamento termico 180°C  
 stainless steel/ *acciaio inossidabile*

## ENVIRONMENTAL SPECIFICATIONS/ CARATTERISTICHE AMBIENTALI

Operating temperature range/ *Temperatura di lavoro*

Storage temperature range/ *Temperatura di stoccaggio*

Protection degree/ *Grado di protezione (EN 60529)*

Relative humidity/ *Umidità relativa*

Vibrations/ *Vibrazioni (EN 60068-2-6)*

Shock resistance/ *Resistenza a shock (EN 60068-2-27)*

-10°C ÷ +70 °C  
 -30°C ÷ +85 °C  
 up to IP66/ *fino a IP66*  
 98% RH without condensing/ *senza condensazione*  
 10 g (from 10 up to 2.000 Hz) / *(da 10 a 2.000 Hz)*  
 20 g (for 11 ms) / *(per 11 ms)*

### ORDER CODE

TKXXX . XX . XXXXX . XXXXX . X . XX . XX . XXnn . XXX-XXXX . Xnnn

a            b            c            d            e            f            g            h            i            j

#### a MODEL/ MODELLO

TK610	unidirectional / monodirezionale
TK611	unidirectional + index / monodirezionale + zero
TK660	bidirectional / bidirezionale
TK661	bidirectional + index (default) / bidirezionale + zero (predefinito)

#### b ASSEMBLY/ MONTAGGIO

SG	Servo-clip / servo-graffe (Ø 63,5 mm)
H	Servo flange (Ø 58/60 mm)

#### c PULSE RATE/ IMPULSI GIRO

2 - 5 - 10 - 20 - 25 - 30 - 32 - 36 - 40 - 50 - 60 - 64 - 72 - 80 - 88 - 90 - 100 - 120 - 125 - 127 - 128 - 150 - 162 - 180 - 183 - 200 - 240 - 250 - 254 - 256 - 300 - 314 - 360 - 375 - 390 - 400 - 500 - 512 - 576 - 600 - 625 - 635 - 720 - 750 - 800 - 900 - 1000 - 1024 - 1200 - 1250 - 1270 - 1440 - 1500 - 1800 - 2000 - 2048 - 2500 - 2540 - 2700 - 3600 - 4096 - 5000 - 9000 - 10.000 - 20.000

others on demand/ altri a richiesta

#### d POWER SUPPLY/ ALIMENTAZIONE

5	+5 V ±5 %
11/30	+11±30 V
24/5	+11/30 V supply +5 V output

#### e OUTPUT FREQUENCY/ FREQUENZA IN USCITA

S	from 0 a - up to 100 kHz / da 0 a 100 kHz
V	from 0 a - up to 300 kHz / da 0 a 300 kHz

#### f PROTECTION DEGREE/ GRADO DI PROTEZIONE

K4	IP 64 (EN60529)
K5	IP 65 (EN60529)
K6	IP 66 (EN60529)

#### g SHAFT/ ALBERO

6	Ø 6 mm
8	Ø 8 mm
10	Ø 10 mm

#### h ELECTRICAL CONNECTIONS/ CONNESSIONI ELETTRICHE

OUTPUT S ; P ; OC ; OP ; PP2 ; LD ; LD2 ( except TK661 escluso TK661)

Pnn	on axial cable gland with cable 1 ÷ 6 m long /pressacavo assiale con cavo da 1 a 6 m;
PLnn	radial cable gland with cable 1 ÷ 6 m long /pressacavo radiale con cavo da 1 a 6 m;
S07	on 7 pins axial MIL connector /conn. circolare militare assiale a 7 poli;
L07	on 7 pins radial MIL connector /conn. circolare militare radiale a 7 poli;
S1	on 12 pins axial "contact" connector /conn. circolare "contact" assiale a 12 poli;
R1	on 12 pins radial "contact" connector /conn. circolare "contact" radiale a 12 poli

OUTPUT LD ; LD2 ( only TK661, solo TK661)

Pnn	on axial cable gland with cable 1 ÷ 6 m long /pressacavo assiale con cavo da 1 a 6 m;
PLnn	radial cable gland with cable 1 ÷ 6 m long /pressacavo radiale con cavo da 1 a 6 m;
S10	on 10 pins axial MIL connector /conn. circolare militare assiale a 10 poli;
L10	on 10 pins radial MIL connector /conn. circolare militare radiale a 10 poli;
S1	on 12 pins axial "contact" connector /conn. circolare "contact" assiale a 12 poli;
R1	on 12 pins radial "contact" connector /conn. circolare "contact" radiale a 12 poli

NOTA: S1 and R1 only with H flange/ S1 e R1 solo con H flange.

nn cable length/ lunghezza cavo (es. PL10 = 1 m. ...PL60 = 6 m)

#### i OUTPUT CIRCUITS/ CIRCUITI DI USCITA

S	NPN standard ( resistor included- resistenza di pull-up inclusa)
OC	NPN open collector
P	PNP ( resistor included - resistenza di pull-down inclusa )
OP	PNP open collector
PP2-5	Push-Pull 5 V output 5 V
PP2-1130	Push-Pull 11/30 Vcc output (only with voltage supply - solo con alimentazione 11/30 V)
LD	Line driver RS422 (26LS31) only - solo 5 V or 24/5V
LD2-5	Line driver 5 Vcc output 5 V
LD2-1130	Line driver 11/30 Vcc output (only with voltage supply - solo con alimentazione 11/30V)

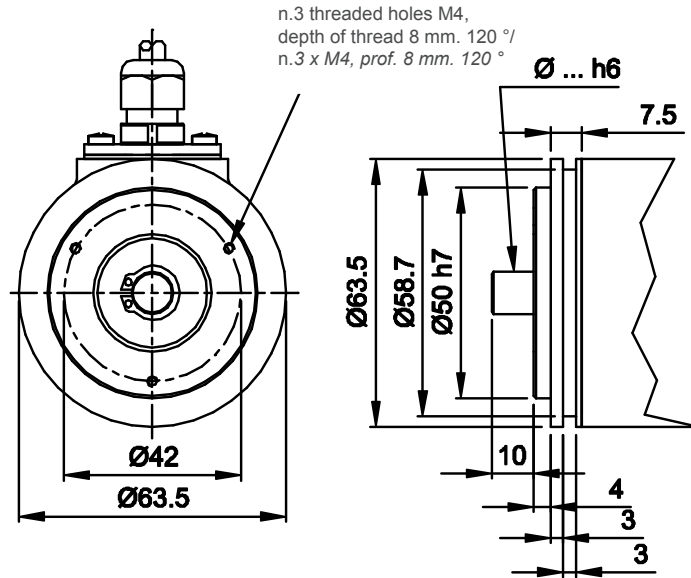
#### j CUSTOM

CUSTOM custom execution/ esecuzione custom

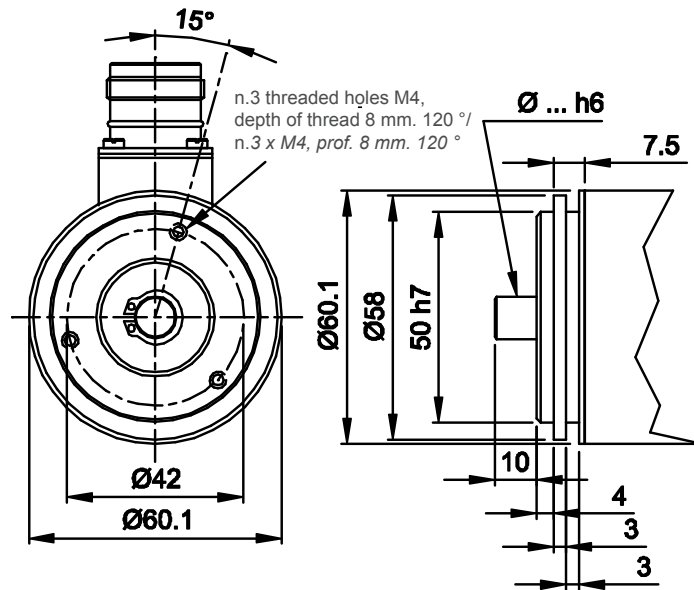
# Incremental optical encoders

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## SG Flange (Ø 63,5 mm)



## H Flange (Ø 58/60 mm)



### Electrical connections/ *connessioni elettriche*

