

TSM60P-SSI

solid shaft

Ø 58



Italsensor Quality System certified according to the UNI EN ISO 9001



## Features:

Optical absolute multiturn encoder **TSM60P- SSI with SSI output interface** is an ideal solution for use in harsh environmental conditions thanks to its robust design, high resolution and high protection degree.

- resolution singleturn: 2,...,8192 ppr (13 bit);
- number of turn: max. 4096 ppr (12 bit);
- total resolution: 25 bit
- protection degree IP 65;
- programmable GRAY - BINARY;



## MECHANICAL SPECIFICATIONS/ CARATTERISTICHE MECCANICHE

Dimensions/ *Dimensioni*

Shaft loading/ *Carico sull'albero*

Moment of inertia/ *Momento di inerzia*

Shaft Rotation Speed/ *Numero giri*

Bearings life/ *Vita dei cuscinetti*

Permissible angular acceleration/ *Accelerazione angolare massima*

Weight/ *Peso*

see drawings / vedi disegni  
axial/ assiale 20 N; radial/ radiale 10 N

typically  $2,5 \cdot 10^{-6}$  kg m<sup>2</sup>

12000 RPM continuous/ continui

3.9 x 10<sup>10</sup> turns/giri (min) - rev. min. @ 6000 RPM, 60°C, 5 N radial, 10 N axial

10<sup>4</sup> rad/s<sup>2</sup>

~ 0,5 kg

## ELECTRICAL SPECIFICATIONS/ CARATTERISTICHE ELETTRICHE

Power supply/ *Alimentazione*

STD codes/ *Codici STD*

SSI

Protection/ *Protezione*

Power dissipation (no load)/ *Potenza assorbita*

11÷27 V

programmable GRAY - BINARY/ programmabile GRAY - BINARIO

clock frequency 80 kHz ÷ 1 MHz, monoflop time 16 µs ÷ 25 µs, typical 20 µs/

frequenza clock 80 kHz ÷ 1 MHz, tempo di monoflop 16 µs ÷ 25 µs, tipico 20 µs

against inversion of polarity/ contro inversione di polarità

<3 W

## MATERIALS/ MATERIALI UTILIZZATI

Flange/ *Flangia*

Housing/ *Corpo*

Shaft/ *Albero*

aluminum non corroding/ in alluminio anticorrosivo

oxidated aluminum / alluminio ossidato

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: 1996)*

Shock resistance/ *Resistenza a shock (EN 60068-2-27:1995)*

Warm up time/ *Tempo di inializzazione*

-20 °C ÷ +70 °C

-30 °C ÷ +80 °C

IP65

98% RH without condensing/ senza condensazione

≤ 100 m/s<sup>2</sup>, sine 50-2000 Hz

≤ 1000 m/s<sup>2</sup>, half-sine 11ms

1 s

### ORDER CODE

**TSM60P . XX . 8192 . 4096 . G . 11/27 . K5 . XX . XXnn . XXXX . XXX . X**

**a      b      c      d      e      f      g      h      i      j      k      l**

#### **a** MODEL/ MODELLO

TSM60P

#### **b** ASSEMBLY/ MONTAGGIO

S Servo flange/ flangia servo  
 SG Servo-clip flange/ flangia servo-graffe  
 F Square flange/ flangia quadra

#### **c** STEPS/ PASSI PER GIRO

8192 from 2 up to 8192 steps/turn programmable (13 bit)  
 da 2 a 8192 passi/ giro programmabile

#### **d** TURNS/ NUMERO GIRI

4096 from 1 to 4096 revolutions programmable (12 bit)  
 da 1 a 4096 giri programmabili

#### **e** CODE/ CODE

G Natural Gray code/ codice Gray naturale  
 Programmable/ programmabile Gray-Binary

#### **f** POWER SUPPLY/ ALIMENTAZIONE

11/27 +11÷27 V

#### **g** PROTECTION DEGREE/ GRADO DI PROTEZIONE

K5 IP65 (EN 60529: 1991)

#### **h** SHAFT/ ALBERO

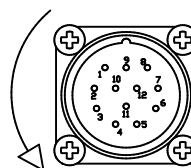
6 Ø6 mm (SG)  
 10 Ø10 mm (S, F)

#### **i** ELECTRICAL CONNECTIONS/ CONNESSIONI ELETTRICHE

SL12 on 12 pin radial connector/ connettore circolare radiale a 12 poli.

"T" type connection / connessione tipo "T"  
 Mating female connector cod. 1E2A212H / Femmina volante cod. 1E2A212H

**Connettore maschio 12 poli  
 12 poles male connector**



**Pin 1 : 0V**  
**Pin 2 : DATA+**  
**Pin 3 : CKI+**  
**Pin 4 : PROGR+ (RS485)**  
**Pin 5 : N.C.**  
**Pin 6 : PROGR- (RS485)**  
**Pin 7 : N.C.**  
**Pin 8 : +Vcc**  
**Pin 9 : Zero Set**  
**Pin 10 : DATA-**  
**Pin 11 : CKI-**  
**Pin 12 : UP/DOWN**

#### **j** OUTPUT CIRCUITS/ CIRCUITI DI USCITA

S25C SSI 25 bit center alignment (tree format)/ SSI 25 bit allineato al centro  
 Programmable format (standard/ tree format)/ formato programmabile (standard/ albero)

#### **k** SERIAL INTERFACE/ INTERFACCIA DI PROGRAMMAZIONE

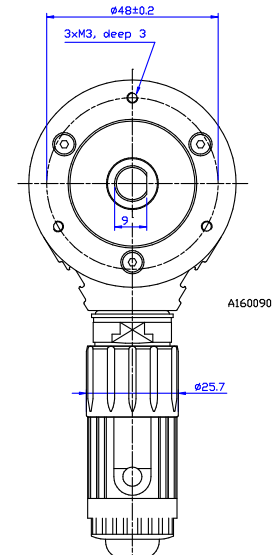
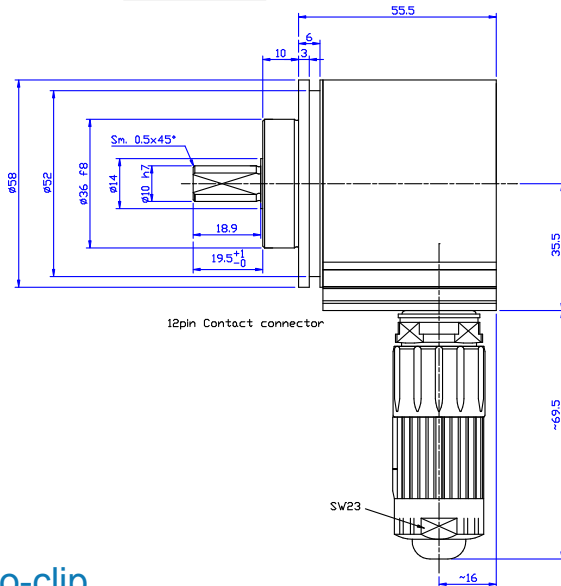
485 Program interface RS485 / Interfaccia programmazione RS485

In order to program the device you must require the dedicated adapter model TSM60P-PT/  
 Per la programmazione richiedere l'apposito adattatore codice TSM60P-PT

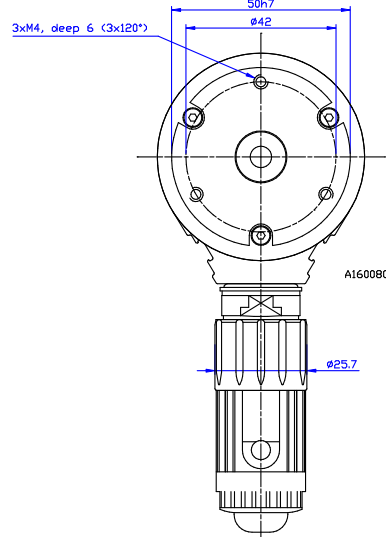
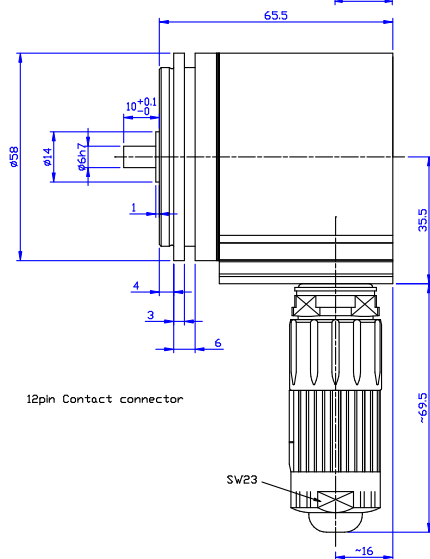
#### **l** OPTIONS/ OPZIONI

W Up/Down PNP (DOWN open or <= 2 V; UP >= 8V up to 30 V / Decrescente aperto o <= 2 V; UP >= 8V fino a 30 V)  
 T Zero Set PNP (>= 8 V up to/ fino a 30 V)

### S - Servo flange



### SG - Servo-clip



### F - Square flange

