



Features:

Absolute multiturn encoder **TSML58P-ETHCAT** with **ETHERCAT** output interface is an ideal solution for use in harsh environmental conditions thanks to its robust design, high resolution up to 28 bit and high protection degree up to IP67.

- resolution singleturn: 1,...,65536 ppr (up to 16 bit);
- number of turn: max. 4096 ppr (12 bit);
- total resolution: 1,...,268435456 (28 bit) programmable;
- high protection degree up to IP 67;
- easy setting of a preset value using a control bit.



MECHANICAL SPECIFICATIONS/ CARATTERISTICHE MECCANICHE

Dimensions/ *Dimensioni*
 Shaft loading/ *Carico sull'albero*
 Moment of inertia/ *Momento di inerzia*
 Shaft Rotation Speed/ *Numero giri*
 Weight/ *Peso*

see drawings / vedi disegni
 axial/ assiale 40 N; radial/ radiale 110 N
 typically $3,0 \cdot 10^{-6}$ kgm²
 12.000 RPM
 < 400g

ELECTRICAL SPECIFICATIONS/ CARATTERISTICHE ELETTRICHE

Power supply/ *Alimentazione*
 Diagnostic / Status LED
 Protection/ *Protezione*
 Power dissipation/ *Potenza assorbita*
 Start-up time

10÷30 V
 see pag. 4 of datasheet / vedere pagina 4 del datasheet
 against inversion of polarity/ contro inversione di polarità
 $\leq 2,5$ W
 <1s

MATERIALS/ MATERIALI UTILIZZATI

Flange/ *Flangia*
 Housing/ *Corpo*
 Shaft/ *Albero*

aluminum non corroding/ in alluminio anticorrosivo
 zinc die-cast/ pressofusione alluminio
 stainless steel/ acciaio inossidabile

ENVIRONMENTAL SPECIFICATIONS/ CARATTERISTICHE AMBIENTALI

Operating temperature range/ *Temperatura di lavoro*
 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)

-40 °C ÷ +85 °C
 up to IP67
 98% RH without condensing/ senza condensazione
 ≤ 10 g (10Hz - 1000Hz)
 ≤ 100 g (halfsine 6ms)

ORDER CODE

TSML58P . XXX . 65536 . 4096 . B . 10/30 . XX . XX . L= . ETHCAT

a

b

c

d

e

f

g

h

i

j

a MODEL/ MODELLO

TSML58P

f POWER SUPPLY/ ALIMENTAZIONE

10/30 +10÷30 V

b ASSEMBLY/ MONTAGGIO

SG1 Synchro flange/ flangia servo-graffe
 SG2 Synchro flange/ flangia servo-graffe
 F1 Square flange (pilot 31.75 mm) / Flangia quadra (centratore 31.75mm)

g PROTECTION DEGREE/ GRADO DI PROTEZIONE

K5 IP65 (EN 60529)
 K7 IP67 (EN 60529)

c STEPS/ PASSI PER GIRO

65536 from 1 up to 65536 steps/turn programmable
 da 1 a 65536 passi/giro programmabile

h SHAFT/ ALBERO

6 Ø6 mm (SG2) Fit/ tolleranza: f6
 10 Ø10 mm (SG1) Fit/ tolleranza: h8
 9,52 Ø9,52 mm (F1) Fit/ tolleranza: h8

d TURNS/ NUMERO GIRI

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

i ELECTRICAL CONNECTIONS/ CONNESSIONI ELETTRICHE

L= 3 x radial M12 connector 4-pin
 uscita radiale su n° 3 connettori M12 a 4-pin

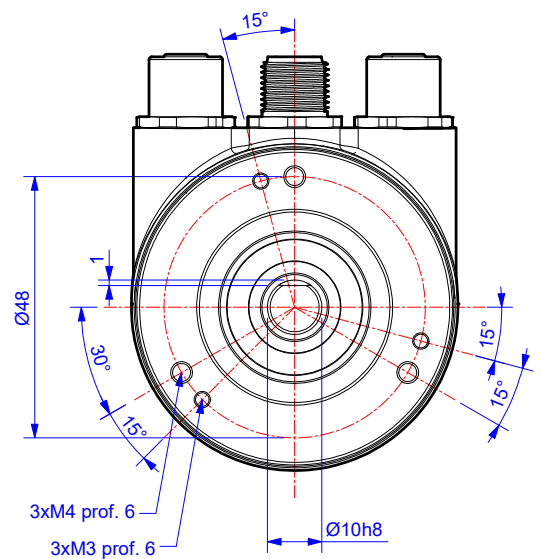
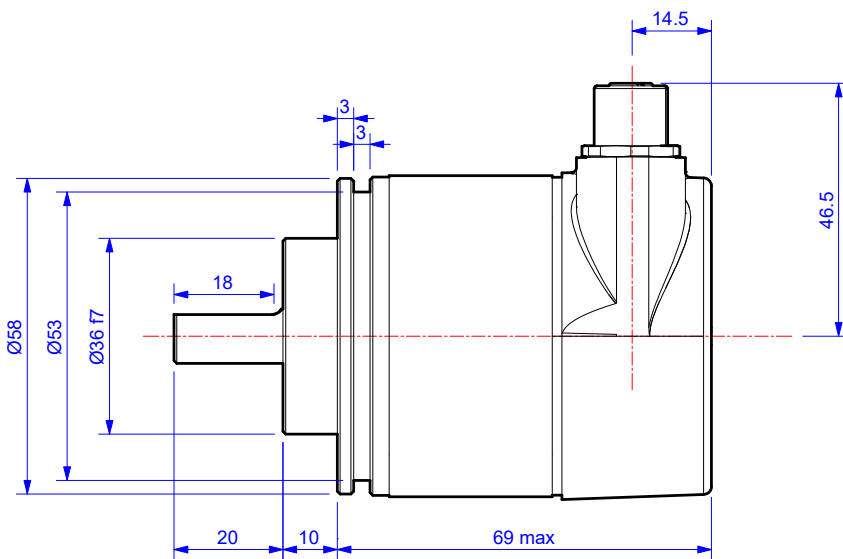
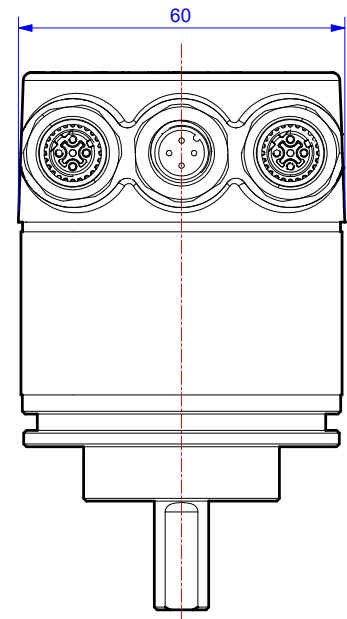
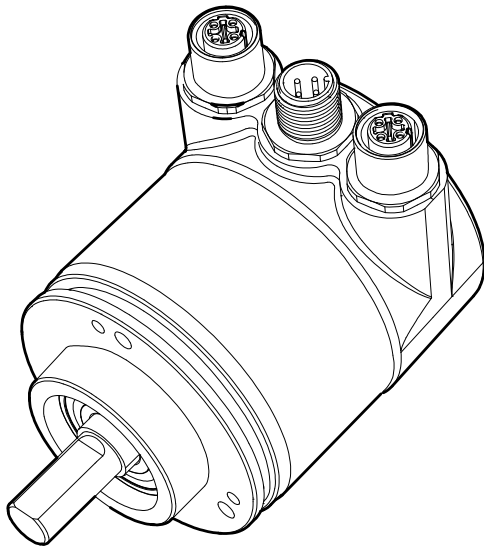
e CODE/ CODE

B Binary/ binario

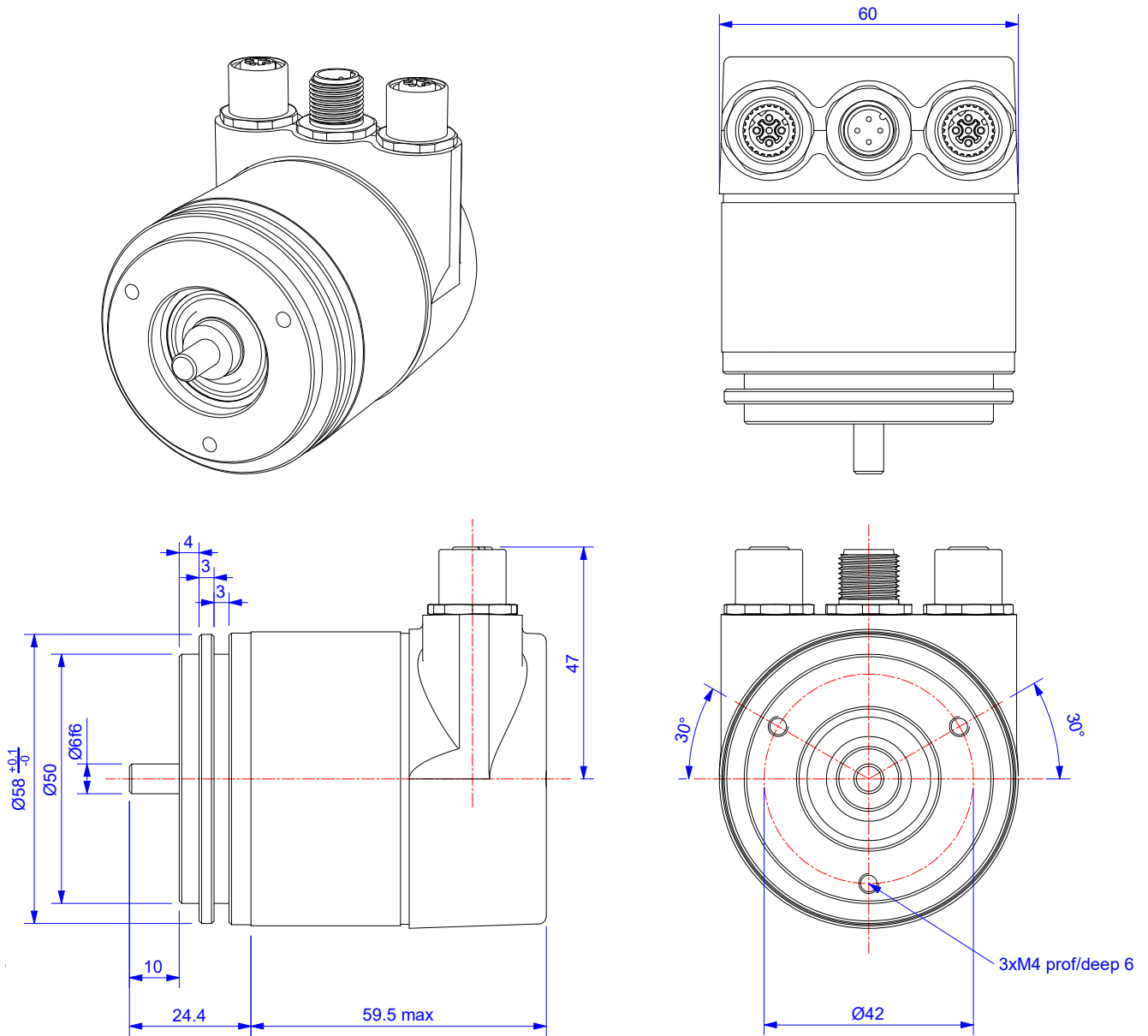
j OUTPUT CIRCUITS/ CIRCUITI DI USCITA

ETHCAT EtherCAT

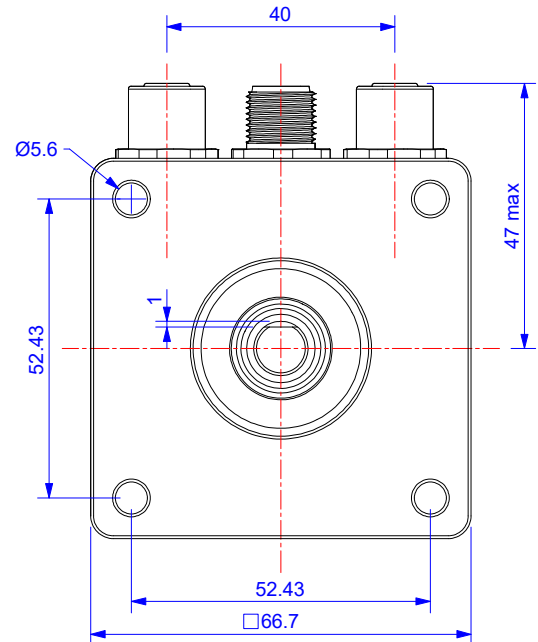
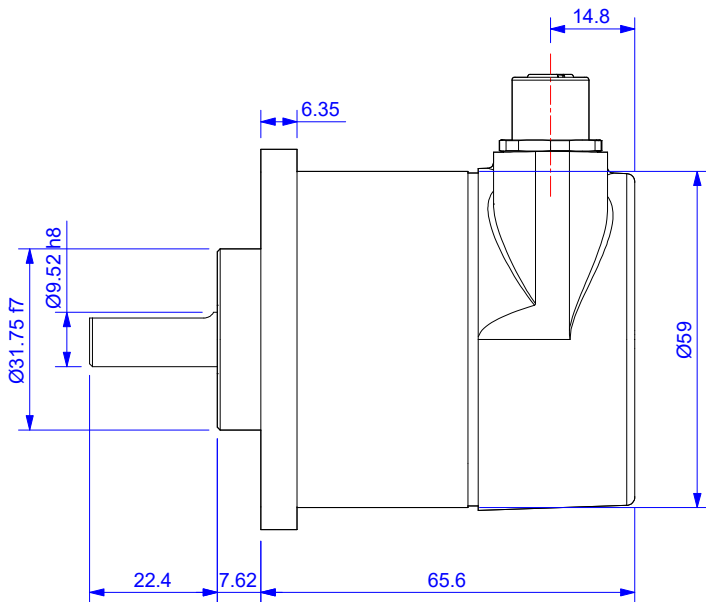
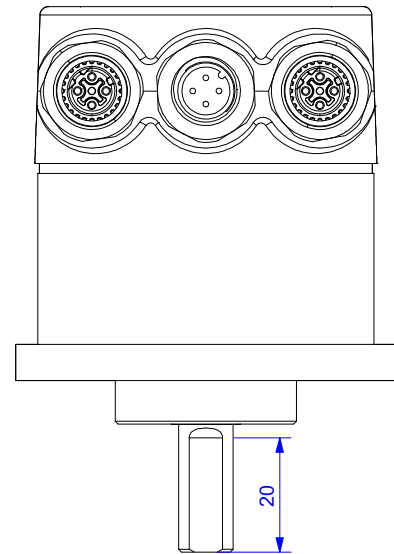
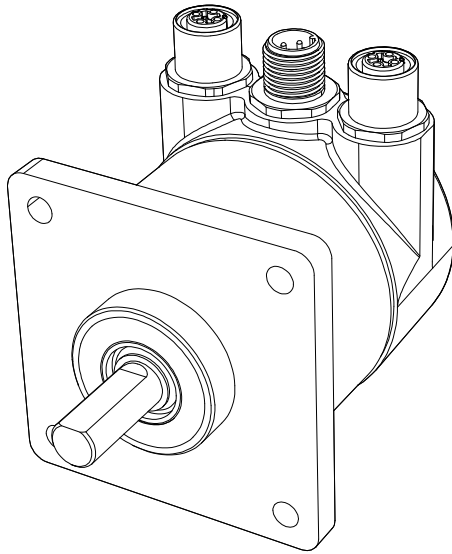
SG1 - Synchro flange



SG2 - Synchro flange

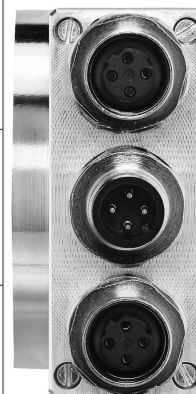


F1 - Square flange



Terminal assignment/ schema connessioni

Interface	Type of connection	Function	M12 connector, 4-pin				Diagram	
			Signal:	Transmit data +	Receive data +	Transmit data -		Receive data -
ETHCAT	Bus Port IN	M12 Female 4 pin D-coded	Signal:	Transmit data +	Receive data +	Transmit data -	Receive data -	
			Abbreviation:	TxD+	RxD+	TxD-	RxD-	
			Pin:	1	2	3	4	
	Power Supply	M12 Male 4 pin A-coded	Signal:	Voltage +	-	Voltage -	-	
			Abbreviation:	+ V	-	0V	-	
			Pin:	1	2	3	4	
	Bus Port OUT	M12 Female 4 pin D-coded	Signal:	Transmit data +	Receive data +	Transmit data -	Receive data -	
			Abbreviation:	TxD+	RxD+	TxD-	RxD-	
			Pin:	1	2	3	4	



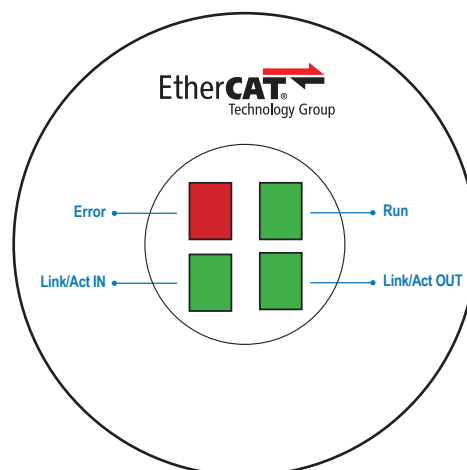
Diagnostic and Status LED / LED di diagnostica e stato

L'encoder fornisce sul retro della custodia diversi LED per la diagnostica. Per ogni porta è associato un LED per segnalare lo stato di collegamento e l'attività "LS/DA".

Sono presenti due LED ("error" e "Status") per indicare lo stato della rete EtherCAT®.

The encoder provides on the backside of the enclosure several diagnostic LEDs. For each port there is a LED about link status and activity named "LS/DA".

There are two LEDs about EtherCAT® network status ("error" and "Status").



LED	Color	Status	Description for LED
Error	Red	Off	No Error
		Blinking	Invalid Configuration
		Single Flash	Local Error
		Double Flash	Process Data Watchdog Timeout/EtherCAT® Watchdog Timeout
		Flickering	Booting Error
		On	Application Failure
Run	Green	Off	Initialization
		Blinking	Pre-Operational
		Single Flash	Safe-Operational
		Flickering	Initialization or Bootstrap
		On	Operational

LED	Color	Status	Description for LED = on
Link/Act IN	Green	On	LINK is active for HUB port 1
		Blinking	Activity on HUB port 1
Link/Act OUT	Green	On	LINK is active for HUB port 2
		Blinking	Activity on HUB port 2