

# Schmitz Engineering Liaison

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## 860/ 861, incremental, fiberoptic link

The 860/861 is a size 25, housed encoder with resolution of up to 10,000 counts/revolution (40,000 measuring steps) with an integral fiberoptic link. The communication-grade fiberoptic cable insures noise-free transmission of the encoder signals, immune to EMI, RFI, lightning etc. The 860 is transmit only, the 861 can be daisy-chained, up to four units per single cable.

The receiver is housed in the backshell of a DB-25 connector. The outputs are compatible with PLC controllers, both in the 5 V and 8 - 15 V supply mode (RS 422 and DIN 66259 part 3 compatible). The encoders can be locally powered from 8 V to 30 V, polarity and overvoltage protected.



### mechanical data

shaft diameter: .3745" / .3748"  
shaft loading: 40 lbs axial, 35 lbs radial  
shaft runout: .0005" T.I.R.  
starting torque: 1.5 oz.in max @ 20°C  
shaft rotation: continuous, reversible  
slew speed: 160 RPS  
bearings: ABEC 7, sealed  
shaft material: 416 stainless  
housing material: aluminum  
cover material: aluminum  
bearing life: manufacturer's specs  
moment of inertia:  $4.1 \times 10^{-4}$  oz.in.sec<sup>2</sup>  
weight: approx. 13 oz (encoder only)

### electrical data

cycles per revolution: up to 10,000  
power supply encoder: 8 - 30 Vdc @ 100 mA max  
power supply connector: 5 Vdc @ 100 mA (no load)  
optional supply connector: 8 - 15 Vdc @ 100 mA  
output format: incremental, A & B channel in quadrature, index  
connector output: TTL (RS 422 compatible)  
max. frequency / encoder: 100 KHz  
internal frequency of link: 20 MHz

### environmental data

temperature: operating: -20°C to +90°C  
shock: 50 G's @ 11 ms  
vibration: 5-2,000 Hz @ 20 G's  
humidity: 98% without condensation  
protection: IP 64

### standard linecounts:

16,32,50,96,100,110,120,128,155,192, 200,210,220,240,254,256,280,288,300, 310,360,384,400,480,500,508,512,560, 576,600,720,768,800,850,960,1000, 1152, 1172, 1200,1440,1700,2000,2344 4000, 7200 & 10,000 c/r.

Special linecounts and index configurations available on request.

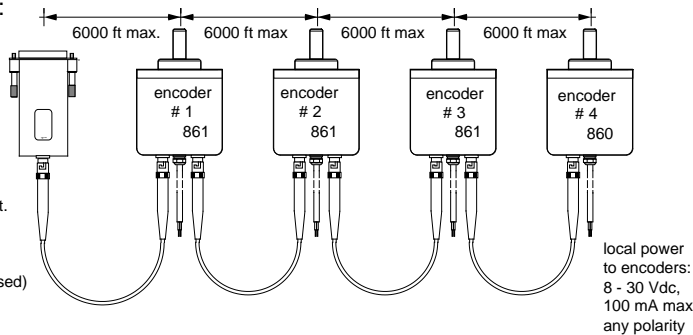
pin #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
signal	- sync	strobe	5V in	G9	G10				+ Vin	G6	G5	gnd	5V out		G8	G11	G2	G1		G4		G7	G3	G0	

### notes connector:

**5 V power supply:**  
+ 5 V to pin 3 + 9  
output IC : MC 3487,  
5 V signals sink/source

**8 - 15 V power supply:**  
Vin to pin 9  
jumper pin 3 to pin 13  
output IC : linedriver,  
8 to 15 V sink/source out.

- sync: TTL signal, low = link established  
strobe: TTL signal (not used)



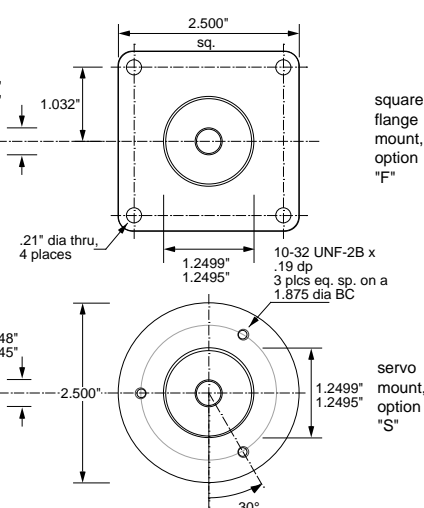
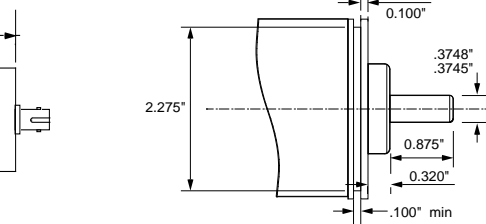
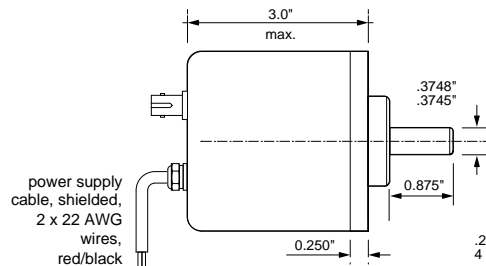
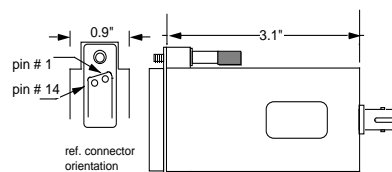
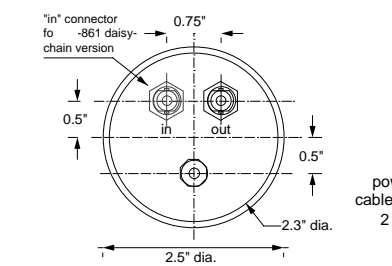
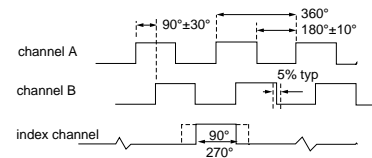
### ordering information

**encoder:**  
p/n 860-(1)-(2) or 861-(1)-(2)  
(1)= linecount encoder  
(2)= F for flange mount, S for servo mount

**cable (factory terminated):**  
p/n 2-02-0247-(cable length in feet)

**terminator kit (for in-house termination of cable):**  
p/n 2-00-0098

### waveforms (each channel):



square flange mount, option "F"

servo mount, option "S"