

ST20 Series Encoders 1-1024 pulses



ST20 with face mount

ST20 Series Heavy Duty Sealed Encoder

- Single or dual channel with index
- RS422 differential line driver optional
- Shaft load 20 lbs radial and 20 lbs axial
- Special shaft seal is standard
- 3/8 or 1/4 inch stainless steel shaft
- Face, flange, servo, or PY mounting adaptor
- Protection to IP64, dust-tight, water splashes

Electrical Specifications

Resolution	10 to 2048 lines
Bandwidth	50 kHz, 125 kHz optional
Standard Power Option	5 VDC
Alternate Power Option	4 to 18 VDC

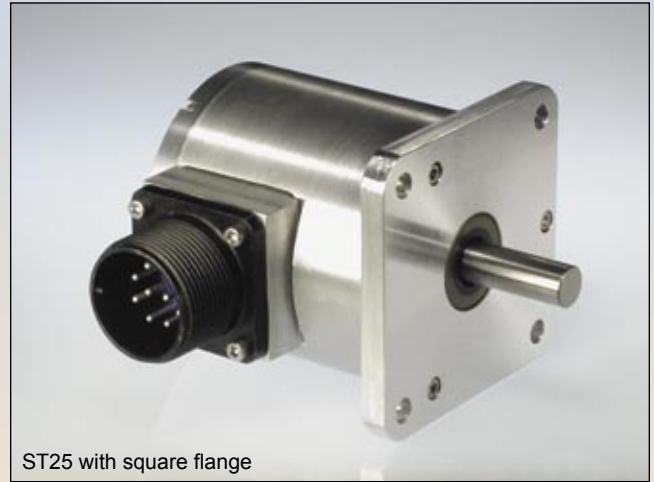
Mechanical Specifications

Diameter x Height	2.0 OD x 1.6 inches
Starting Torque	0.1 oz-inch
Weight	6.5 ounces
Shaft Runout	0.001 T.I.R. maximum
Shaft Material	416 Stainless Steel
Shaft Speed	6,000 RPM maximum

Environmental Specifications

Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Relative Humidity	90% non-condensing
Mechanical Shock	50G for 6mS
Vibration	5 - 2000 Hz @ 20G

ST25 Series Encoders 1-5000 pulses



ST25 with square flange

ST25 Series Industrial Encoder

- Single or dual channel with index
- RS422 differential line driver standard
- Shaft load 30 lbs radial and 30 lbs axial
- Special shaft seal is standard
- 3/8 or 1/4 inch stainless steel shaft
- Face, flange, servo, or PY mounting adaptor
- Protection to IP66, dust-tight, water jets

Electrical Specifications

Resolution	200 to 5000 lines
Bandwidth	From 50 kHz to 500 kHz
Standard Power Option	5 VDC
Alternate Power Option	Consult Factory

Mechanical Specifications

Diameter x Height	2.5 OD x 2.5 inches
Starting Torque	0.9 oz-in, 10 oz-in (seal)
Weight	18 to 28 ounces
Shaft Runout	0.001 T.I.R. maximum
Shaft Material	416 Stainless Steel
Shaft Speed	6,000 RPM maximum

Environmental Specifications

Operating Temperature	-10°C to +100°C
Storage Temperature	-40°C to +100°C
Relative Humidity	98% non-condensing
Mechanical Shock	50G for 11mS
Vibration	5 - 2000 Hz @ 20G



FEATURES:

- Resolutions to 2048 lines, dual channel with index
- 6000 RPM, shaft load 20 lbs radial and 20 lbs axial
- 2.0 OD x 1.6 inches minimum height, 1/4 to 3/8 inch stainless steel shaft
- Flange, face or servo groove mounting
- Protection to IP64, dust-tight, water splashes
- RS422 differential line driver output optional
- Heavy duty environmentally sealed encoder

Electrical Specifications (Low Resolution):

Resolution	Up to 180 lines/revolution
Bandwidth	50 kHz
Power Requirements	5 VDC or 4 to 18 VDC optional
Open Collector Option	10k internal pullup, 10mA sink
Line Driver Option	20mA max source and sink

Electrical Specifications (High Resolution):

Resolution	200 to 2048 lines/revolution
Bandwidth	125 kHz
Power Requirements	5 ± 0.5 VDC, 5mA no load
Open Collector Option	10k internal pullup, 10mA sink
Line Driver Option	20mA max source and sink

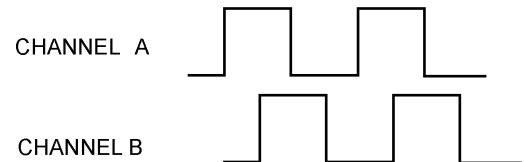
Mechanical Specifications:

Starting Torque	0.1 oz-in
Weight	6.5 oz
Moment of Inertia	6x10 ⁻⁶ oz-in-sec ²
Shaft Material	416 stainless
Shaft Speed	6,000 RPM max
Shaft Runout	0.001 T.I.R. max at shaft end
Shaft Diameter	0.3745 / 0.3748 standard

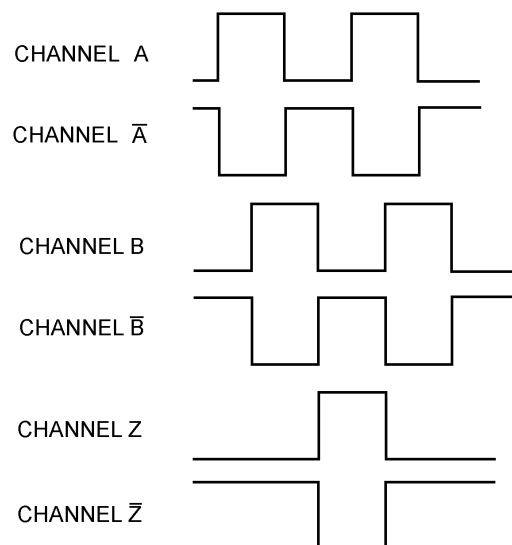
Environmental Specifications:

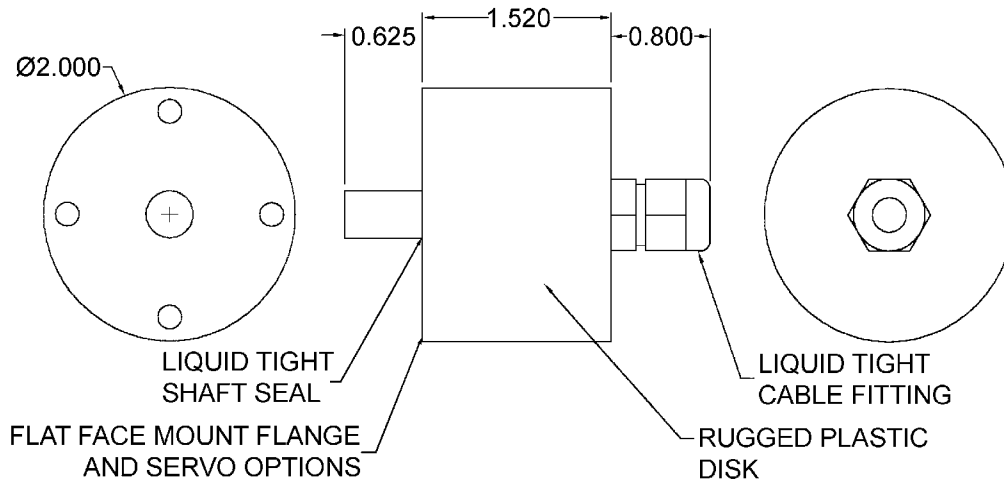
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Relative Humidity	90% non-condensing
Mechanical Shock	50G for 11mS
Vibration	5 to 2000 Hz @ 20G
Environmental Protection	To IP64, dust-tight, water splashes

OUTPUT SIGNAL: INCREMENTAL SQUAREWAVE



QUADRATURE OUTPUT SIGNAL (RS422)





The flexible design concept of the ST20 allows for a great variety of encoder applications while maintaining cost and quality. The model numbering system can be used to configure encoder types using the standard options currently available. However, new models may be configured, by consulting the factory, for specific options not listed here. Almost any line count and shaft modification is possible within the limits listed. Virtually any electronic circuit or mounting pattern can be made available.

ST20-XXXX-X-XXX-XX-X

Resolution

0010 - 10
 0030 - 30
 0050 - 50
 0060 - 60
 0064 - 64
 0100 - 100
 0128 - 128
 0180 - 180
 0200 - 200
 0250 - 250
 0256 - 256
 0360 - 360
 0500 - 500
 0512 - 512
 1000 - 1000
 1024 - 1024
 2000 - 2000
 2048 - 2048

Signal Output

1 - Single channel
 2 - Dual channel
 3 - Dual with index
 4 - Single with compliment
 5 - Dual with compliments
 6 - Dual with index & comp.

Cable Length

Specify in inches

Shaft Size

-.0004 / +.0000

250 - .2498
 312 - .3124
 315 - .3150 (8mm)
 375 - .3748

Mounting

Servo Mount
 (Consult Sales Department)

Face Mount

A - #10-32 x 4 on 1.625 BC
 B - #6-32 x 3 on 1.75 BC
 C - #4-40 x 3 on 1.50 BC
 D - #4-40 x 4 on 1.25 BC

Flange Mount

E - Ø 0.125 x 4 on 1.75 SQ
 F - Ø 0.156 x 4 on 1.75 SQ
 G - Ø 0.218 x 4 on 2.064 SQ

Load Rating

20 lb. radial and 20 lb. axial combined for 1×10^9 revolutions.
 Maximum 35 lb. radial and 50 lb. axial combined for 1.7×10^8 revolutions.



FEATURES:

- Resolutions to 5000 lines, dual channel with index
- 6000 RPM, shaft load 30 lbs radial and 30 lbs axial
- 2.5 OD x 2.5 inches minimum height, 1/4 to 3/8 inch stainless steel shaft
- Flange, face, servo or PY mounting available
- Protection to IP66, dust-tight, water jets
- Overvoltage and polarity reversal protection is available

Electrical:

Resolution	Up to 5000 lines/revolution
Bandwidth	200 kHz, 500 kHz optional
Power Requirements	5 ± 10% VDC standard
Output	RS422 line driver standard
Incremental Accuracy	1 arc minute standard

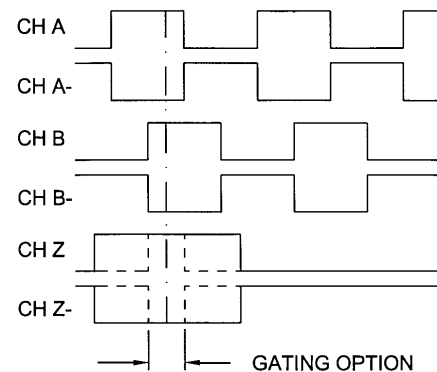
Mechanical:

Starting Torque	10 oz-in with seal
Weight	18 to 28 oz
Moment of Inertia	0.0004 oz-in-sec ²
Shaft Material	416 stainless
Shaft Speed	6000 RPM
Shaft Runout	0.001 TIR max at shaft end
Shaft Diameter	0.3745/0.3748 standard

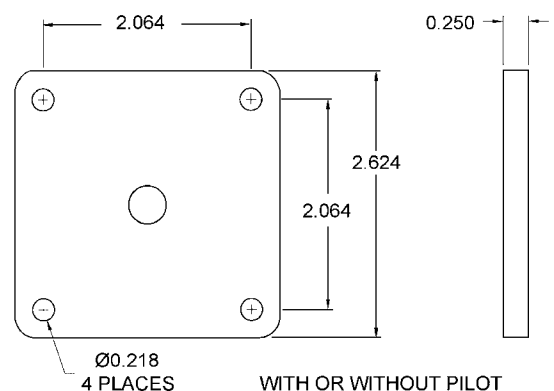
Environmental:

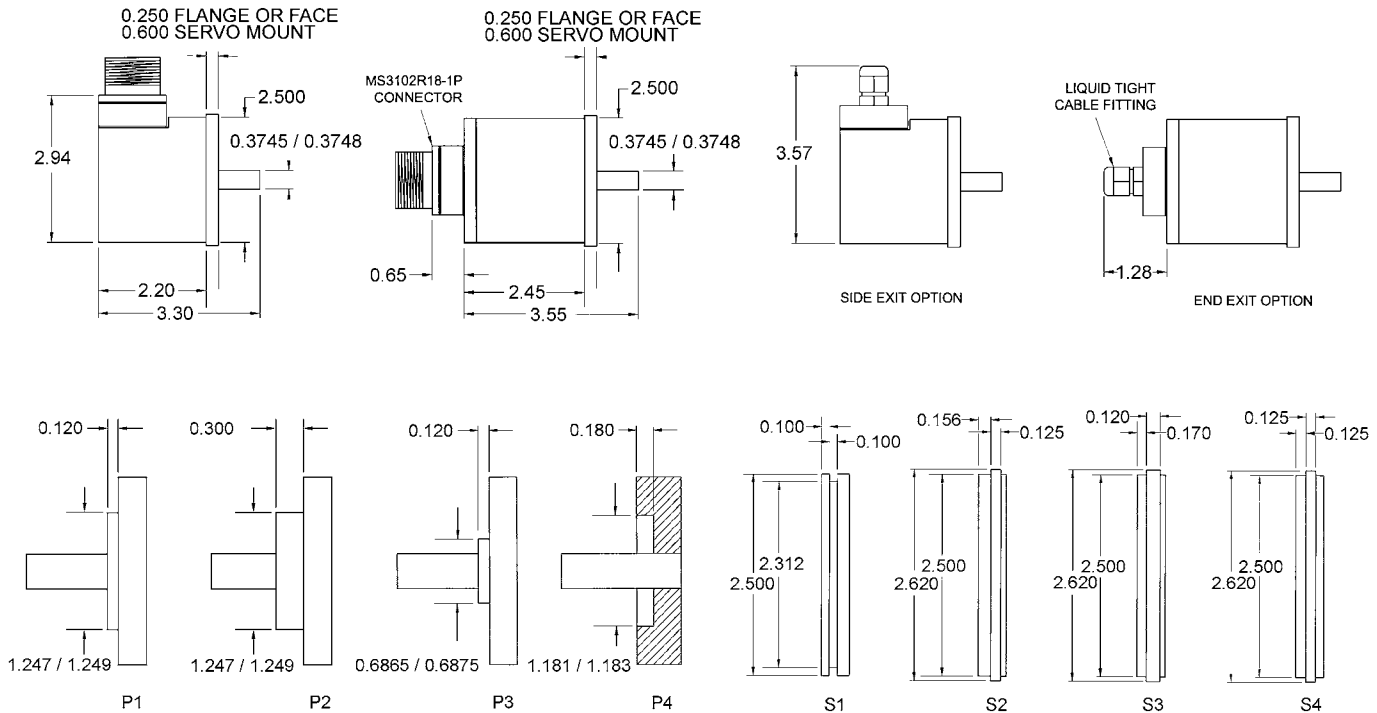
Operating Temperature	-10°C to +100°C
Storage Temperature	-40°C to +100°C
Relative Humidity	98% non-condensing
Mechanical Shock	50G for 11mS
Vibration	5 to 2000 Hz @ 20G
Environmental Protection	To IP66, dust-tight, water jets

INCREMENTAL SIGNALS



FLANGE MOUNT





ST25-XXXX-XXX-XX-XX-PX-X-X

Line Count

0200 - 200
0256 - 256
0360 - 360
0500 - 500
0512 - 512
1000 - 1000
1024 - 1024
1250 - 1250
2000 - 2000
2048 - 2048
4096 - 4096
5000 - 5000

Load Rating

30 lb. radial and 30 lb. axial combined for 1×10^9 revolutions.
100 lb. radial and 100 lb. axial combined for 3.7×10^7 revolutions.

Connection

MSS - MS connector, side exit
MSE - MS connector, end exit
CFS - Cable fitting, side exit
CFE - Cable fitting, end exit

Cable Length

Specify cable length in inches for cable fitting options. Enter zeros for connector options.

Mounting

Sx - Servo Mount (above)

S1 - S1
S2 - S2
S3 - S3
S4 - S4

Fx - Face Mount

F1 - #4-40 x 4 on $\varnothing 1.000$ BC
F2 - #4-40 x 4 on $\varnothing 1.250$ BC
F3 - #4-40 x 4 on $\varnothing 1.272$ BC
F4 - #4-40 x 3 on $\varnothing 1.500$ BC
F5 - #10-32 x 4 on $\varnothing 1.625$ BC
F6 - #6-32 x 3 on $\varnothing 1.750$ BC
F7 - #10-32 x 3 on $\varnothing 1.875$ BC
F8 - #4-40 x 4 on $\varnothing 2.000$ BC
F9 - #6-32 x 4 on $\varnothing 2.000$ BC
F10 - #6-32 x 3 on $\varnothing 2.000$ BC

FL - Flange Mount

Shaft Flat

Y - Yes
N - No

Shaft Seal

Y - Yes
N - No

Pilot (above)

0 - None
1 - P1
2 - P2
3 - P3
4 - P4

Accessories



Encoder Accessories

Several different mounting accessories are available for the Servo-Tek encoder line. We offer a coupling accessory for our shaft encoders that will allow attachment to virtually any shaft. An adaptor is also available that will allow attachment to PY mounting kits.

Encoder Cables and Flying Leads

For Servo-Tek's ST38 and ST50 series hollow shaft encoders, we have shielded cables and flying leads available with mating connectors in 8, 14 or 16 pin configurations. See table below for details ("L" is length in inches). Standard shielded cable length is 24 inches for both ST50 and ST38 encoders.

Cables & Flying Leads for ST38 and ST50 Series Encoders			
Pins	Shielded Cable at 80°C	Shielded Cable at 105°C	Flying Leads at 200°C
8	20076-L	20184-L	20073-L
14	20180-L	20183-L	20182-L
16	20181-L	20084-L	20074-L

Other Products

CS-7514F-51C

This low ripple DC tach-generator has a 1/4" stainless steel shaft, 22 AWG shielded cable and an output of 3 volts per thousand RPM. The ripple will not exceed 1.5% RMS on this unit.



SA-740A-2

This small, face mounted DC tach-generator has a 1/8" stainless steel shaft and an output of 7 volts per thousand RPM. It is ideally suited to many instrumentation applications.



ST-7565A-2

This bearingless tach-generator is small in size and has a black delrin housing and end plate. Mounts easily using a #10-32 threaded shaft. Mounting brackets will not be required.



Tachsyn Transducer

The patented Tachsyn brushless tachometer/commutator is a unique transducer that can be used as a brushless DC tachometer and/or as a brushless DC motor commutator.

