Installation Instructions
Size 20 Incremental Encoder, Bulletin 845T

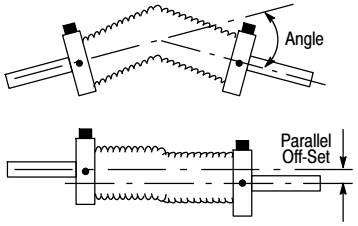
IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

Specifications

Electrical	
Code Format	Incremental (A, AB or ABZ channels)
Quadrature	90° ±22° Channel A leads B CCW
Symmetry	50% ±10%
Zero Index Channel	Gated 1/2 cycle
Power Requirements	Determined by catalog number: 5V DC ±5% @ 150mA maximum 11-20V DC @ 150mA maximum 24V DC @ 150mA maximum
Frequency Response	Data: 210kHz Zero index: 210kHz
Operating Speed (Data)	(100kHz x 60)/pulses per revolution = RPM or 15,000 RPM, whichever is lower
Resolution	Up to 3000 PPR on code disk
Output Drive Capability	Push-Pull Single Ended Driver = ±20mA Differential line driver = ±20mA
Mechanical	
Starting Torque	2.5Ncm typical [3.5in-oz]
Running Torque	2.5Ncm typical [3.5in-oz]
Slew Speed	15,000 RPM
Shaft Loading	Axial: 359N [80lbs] Radial: 359N [80lbs] (10mm, 3/8in shafts) 180N [40lbs] (6mm, 1/4in shafts)
Shaft Size	6mm, 10mm, 6.4mm [1/4in], 9.517mm [3/8in] diameter
Environmental	
Housing	NEMA Type 4, IP66 (IEC 529)
Temperature	0°C to +60°C(+32°F to +140°F)—operating -25°C to +90°C (-13°F to +194°F)—storage
Humidity	98%, noncondensing
Shock	50g (11ms duration)
Vibration	20g (5 to 2000Hz)
Approximate Ship Weight	0.44kg (14oz)

ATTENTION: The shielded cables, output devices, and power supplies must be properly grounded. All National Electric Code and applicable local codes and ordinances must be observed when wiring the system.

Flexible Shaft Couplings



ATTENTION: Rigidly coupling the encoder shaft to the machine shaft **will cause a failure** in either the bearings of the encoder or the bearings of the machine shaft.

Accessories

Description	Part Number
High Performance Flexible Coupling	845-FC-*-*
Measuring Wheels	845-MW-A-*
Servo Clamps	845-SC
Pre-Wired Cables	845-CA-*-*
Mating Connectors	845-6P, 845-7P, 845-10P
Differential Encoder Buffer Board	845-BB

*See *Sensor* catalog for selection.

Selection Guide

845T — D Z 1 3 E CR — C

a b c d e f g

a

Mounting Configuration	
Code	**Description**
D	Square Flange
H	Servo with Face Mount Holes
L	Servo without Face Mount Holes

b

Shaft Options	
Code	**Description**
A	6mm Diameter
B	10mm Diameter
C	1/4in Diameter
Z	3/8in Diameter
K	6mm w/Flat
L	10mm w/Flat
M	1/4in w/Flat
N	3/8in w/Flat

c

Electrical Options ❶	
Code	**Description**
1	5V DC in, 5V DC DLD Out
2	5V DC in, 5V DC P-P Out
3	11-24V DC in, 11-24V DC P-P Out
4	11-20V DC in, 5V DC DLD Out
5	24V DC in, 5V DC DLD Out
6	11-24V DC in, 11-24V DC DLD out

❶ DLD = Differential Line Driver
P-P = Push-Pull Single Ended Driver

d

Signal Options	
Code	**Description**
1	Channel A Only
2	Channel A and B
3	Channel A, B, and Z

e

Connection Options	
Code	**Description**
A	6 Pin Connector ❷
B	7 Pin Connector ❷
E	10 Pin Connector
P	Pigtail Cable

❷ This option not available with Electrical Option codes: “1,” “4,” “5” or “6.”

g

Mating Connector/Cable Length	
Code	**Description**
Blank	Without Mating Connector ❸
C	With Mating Connector ❸
1	1m (3.28ft) Cable Length ❹
5	5m (16.4ft) Cable Length ❹
9	9m (29.52ft) Cable Length ❹

❸ These options not available with Connection Options code: “P.”

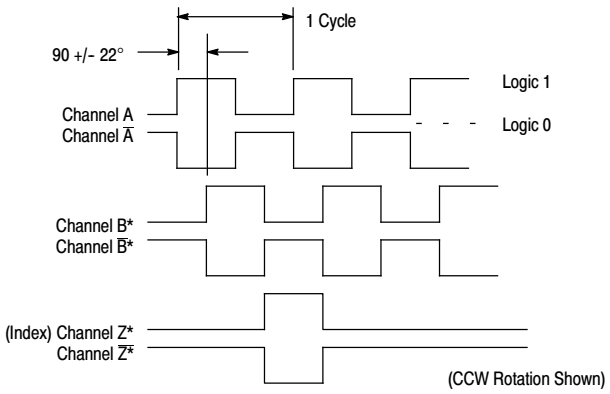
❹ These options not available with Connection Options code: “A,” “B,” & “E.”

f

Resolution	
Code	**Description (PPR)**
AG	1
AM	5
BG	10
CA	50
CB	60
CE	64
CF	80
CG	100
DB	120
DF	150
EB	180
CH	200
CJ	250
CC	254
CW	256
EG	300
CK	360
CL	400
CM	500
DW	512
EH	600
DG	720
DL	800
LG	900
CN	1000
FW	1024
EL	1200
CD	1250
RF	1280
CU	1472
EM	1500
FL	1600
CP	1800
DN	2000
CS	2048
HL	2400
CR	2500
CY	2540
LJ	2750
EN	3000

Electrical Connections

Differential Line Driver Output



6-Pin Connector (ACS02E14S-6P (023))

Push-Pull Outputs

Pin	Function	Pin	Function
A	DC Return	D	Channel B Output
B	DC+ Input	E	Channel A Output
C	Channel Z Output	F	No Connection

7-Pin Connector (ACS02E16S-1P (023))

Push-Pull Outputs

Pin	Function	Pin	Function
A	Channel A Output	E	No Connection
B	Channel B Output	F	DC Return
C	Channel Z Output	G	No Connection
D	DC+ Input	—	No Connection

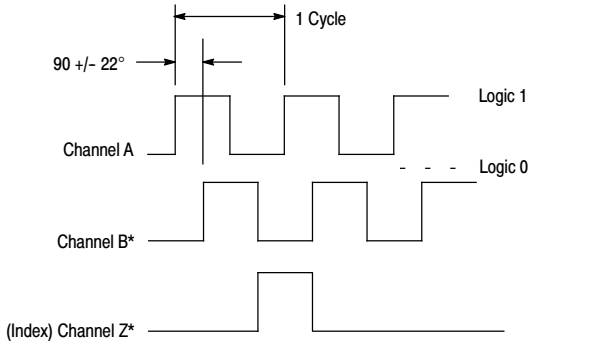
10-Pin Connector (ACS02E18S-1P (023))

Push-Pull, Differential Line Driver Outputs

Pin	Function	Pin	Function
A	Channel A Output	F	DC Return
B	Channel B Output	G	No Connection
C	Channel Z Output	H	Channel $\overline{A}$ Output❶
D	DC+ Input	I	Channel $\overline{B}$ Output❶
E	No Connection	J	Channel $\overline{Z}$ Output❶

❶ Not included with push-pull outputs

Push-Pull Single End Driver Output



Cable

Cable Differential Line Driver Outputs

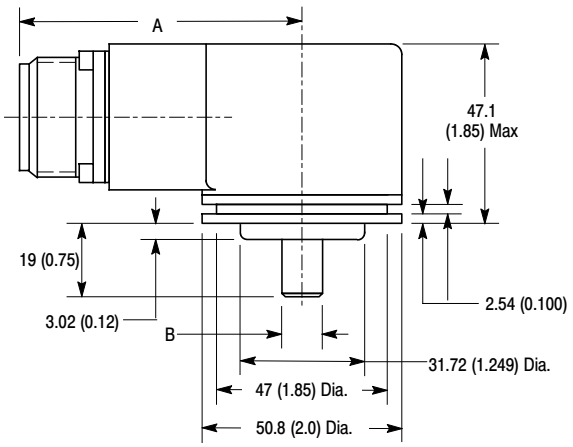
Wire Pair	Wire Color	Function
Red/Black	Red	DC+ Input
	Black	DC Return
White/Black	White	Channel A Output
	Black	Channel $\overline{A}$ Output
Blue/Black	Blue	Channel B Output
	Black	Channel $\overline{B}$ Output
Green/Black	Green	Channel Z Output
	Black	Channel $\overline{Z}$ Output

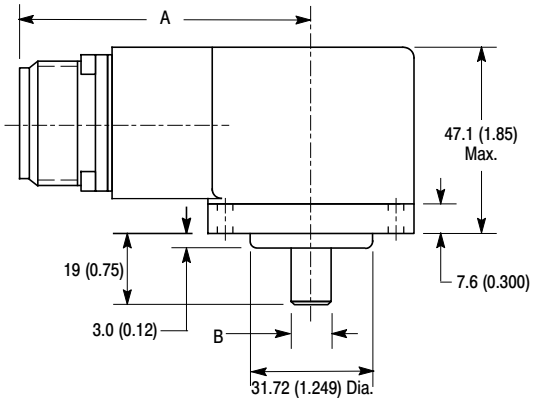
Cable

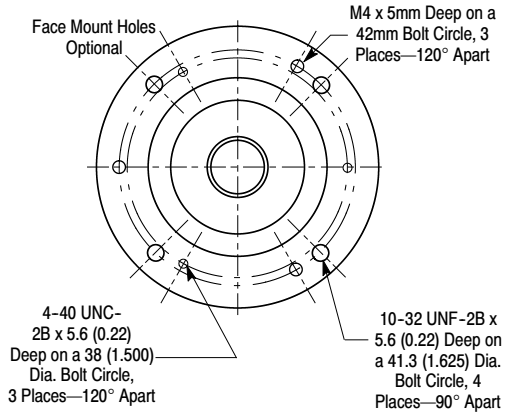
Push-Pull Outputs

Wire Pair	Wire Color	Function
Red/Black	Red	DC+ Input
	Black	DC Return
White/Black	White	Channel A Output
	Black	Not Connected
Blue/Black	Blue	Channel B Output
	Black	Not Connected
Green/Black	Green	Channel Z Output
	Black	Not Connected

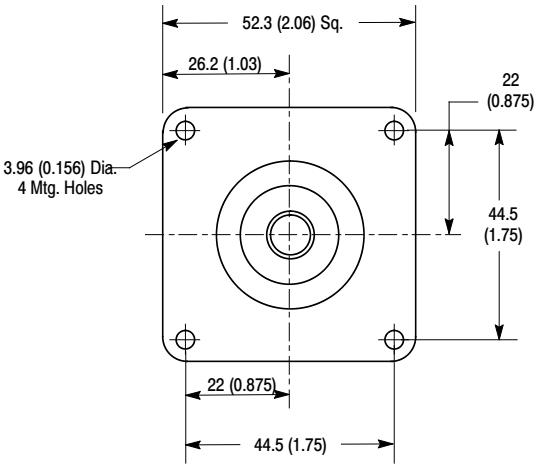
Dimensions—mm (inches)







Servo Mount



Square Flange Mount

Connector Dimensions

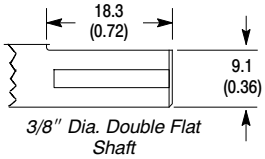
Dimension Code	Radial Connector Options	Length
A	ACS02E14S-6P (6 pin)	2.272 (57.7)
	ACS02E16S-1P (7 pin)	2.460 (62.5)
	ACS02E18-1P (10 pin)	2.691 (68.9)

Shaft Diameter Dimensions

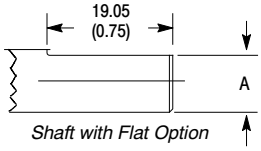
Dimension Code	Shaft Diameter Options
B	0.3749 +0.0000, -0.0005 (9.52) Diameter
	0.2499 +0.0000, -0.0005 (6.35) Diameter
	10 mm +0.000 mm, -0.013 mm Diameter
	6 mm +0.000 mm, -0.013 mm Diameter

Flat Dimensions

Code	Dimension "A"
K	5.3mm (0.21in)
L	9.1mm (0.36in)
M	5.5mm (0.22in)
N	8.6mm (0.34in)



3/8″ Dia. Double Flat Shaft



Shaft with Flat Option

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