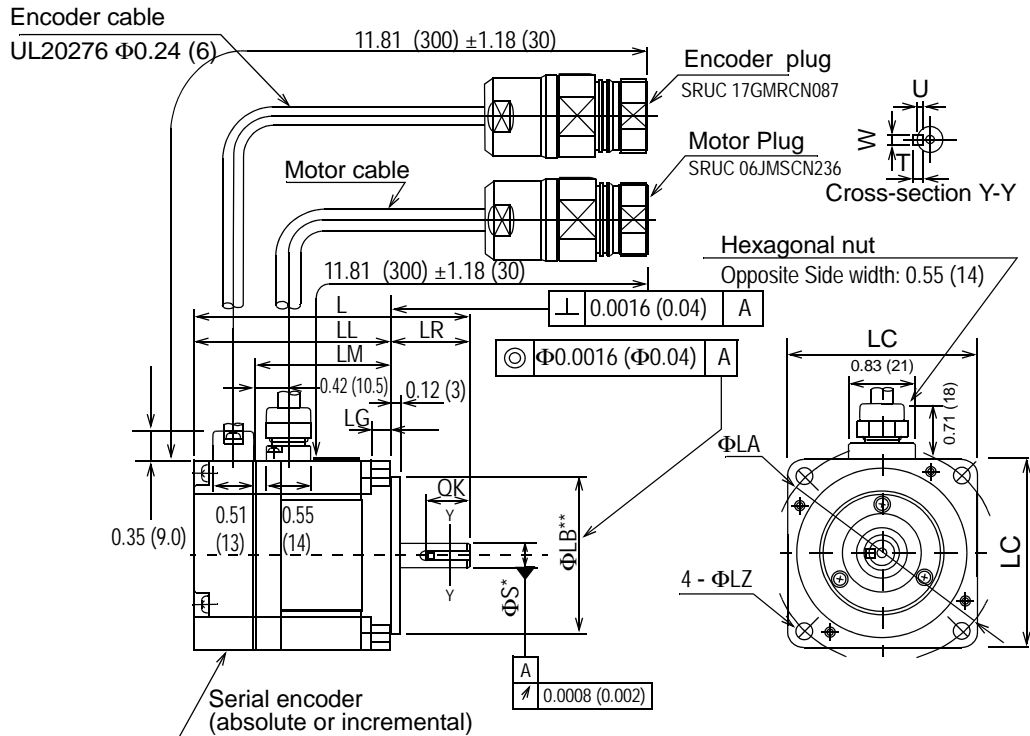


Dimensions in inches (mm)

(1) 13-Bit Incremental or 16-Bit Absolute Encoder, w/o Brake

- Note:
1. The keyway complies with JIS B1301-1976 (precision). A straight key is supplied.
 2. Conforms to the IP67 enclosure, excluding the shaft (optional shaft seal available).
 3. The quoted allowable radial load is the value at a position 5mm (0.2in) from the shaft end.

• 100W (0.13hp)



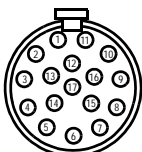
Type SGMPH-	L	LL	LM	LR	LG	LC	ΦLA	ΦLZ	ΦS*	ΦLB**	Key				Output W (hp)	Torque in-lb (N·m)	Time Rating	Rated Speed (rpm)	Approx Mass lb (kg)	Allowable Radial Load lb (N)	Allowable Thrust Load lb (N)
											OK	U	W	T							
01□□E41D	3.43	2.44	1.67	0.98	0.24	2.36	2.76	0.21	0.315	1.97	0.55	0.071	0.12	0.12	100	2.81	Continuous	3000	1.54	17.5	11.0
01□□E41D	(87)	(62)	(42.5)	(25)	(6)	(60)	(70)	(5.3)	(8)	(50)	(14)	(1.8)	(3)	(3)	(0.13)	(0.318)			(0.7)	(78)	(49)

Note: The quoted allowable radial load is the value at a position 0.79in (20mm.) from the mounting surface.

†Some motor dimensions vary for motors with the optional shaft seal: See p.9 for details.

Specified Tolerances				
Dimension	*ΦS		**ΦLB	
Unit	Diameter	Tolerance	Diameter	Tolerance
in	0.3150	+0.0000-0.0004	1.9685	+0.0000 -0.0010
mm	8.000	+0.000 -0.009	50.000	+0.000 -0.025

Encoder Plug



SRUC 17GMRCN087 (Interconnector)

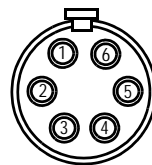
Incremental Terminal Specifications

Pin No.	Description	Color
1*	Battery -	—
2*	Battery * (3.6V)	—
3	Data +	Blue
4	Data-	Blue/White
5 - 7, 10 - 17	Free	—
8	+5V (Power Supply)	Red
9	0V (Power Supply)	Black
Connector Case	FG (Frame Ground)	Shield wire

*Note: Incremental Terminal pins number 1 and 2 are connectors used for 16-bit absolute encoder option only.

Mating Connector: SPNA17HFRON16900E3 (Interconnector)

Motor Plug



SRUC 06JM5CN236 (Interconnector)

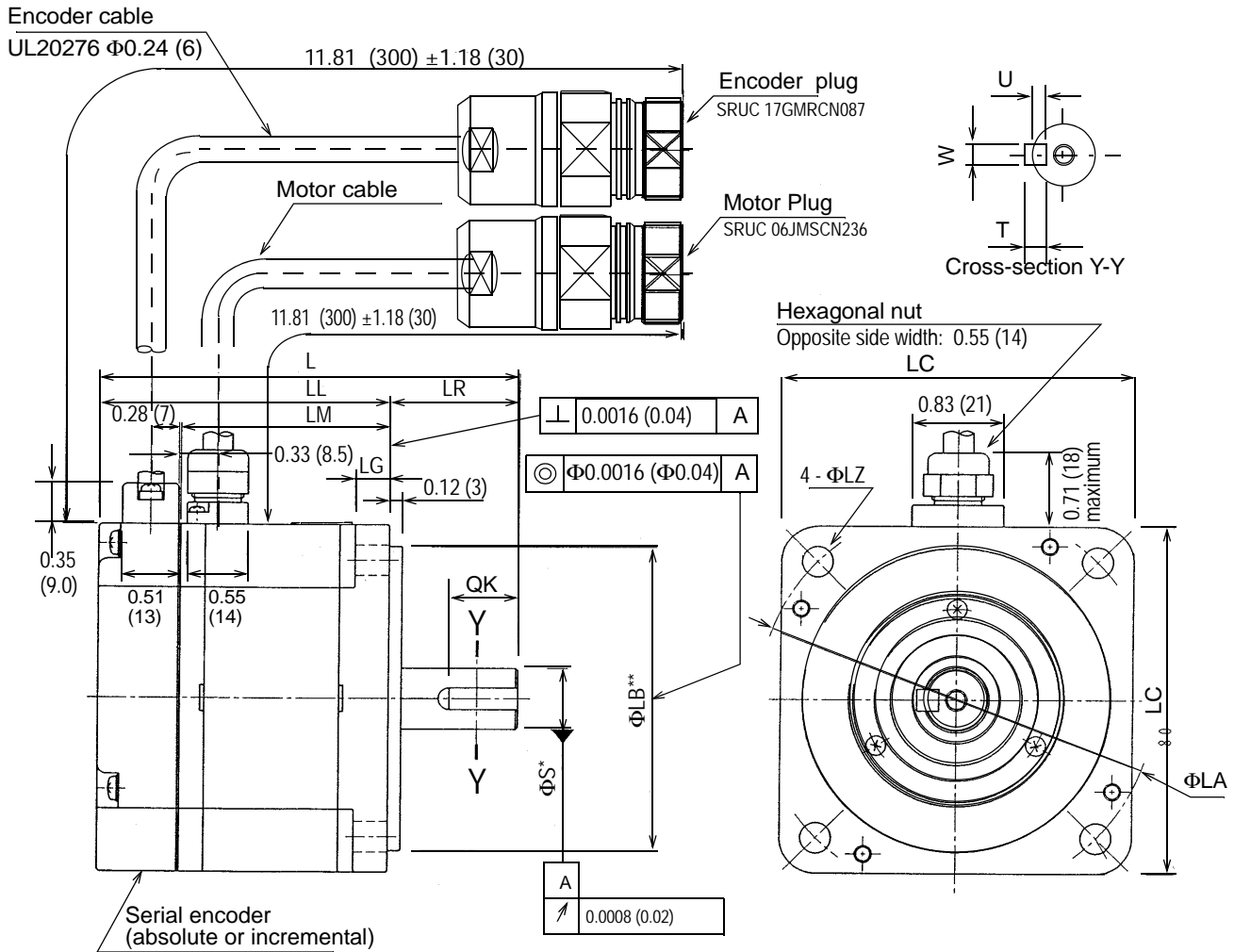
Motor Wiring Specifications

Pin Number	Description	Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Blue
6	FG (Frame Ground)	Green/Yellow

Mating Connector: SPNA06KFSDN169 (Interconnector)

100/200V Single-phase Sigma II Servo Systems

- 200W (0.27hp), 400W (0.53hp)



SGMPH
Servomotors

Type SGMPH-	L	LL	LM	LR	LG	LC	ΦLA	ΦLZ	ΦS*	ΦLB**	Key				Voltage V	Output W (hp)	Torque in·lb (N·m)	Time Rating	Rated Speed (rpm)	Approx Mass lb (kg)	Allowable Radial Load lb (N)	Allowable Thrust Load lb (N)
											QK	U	W	T								
02□□E41D	3.82 (97)	2.64 (67)	1.89 (48.1)	1.18	0.31 (8)	3.15 (80)	3.54 (90)	0.28 (7)	0.551 (14)	2.76 (70)	0.63 (16)	0.12 (3)	0.20 (5)	0.20 (5)	200	200 (0.27)	5.64 (0.637)	Continu- ous	3000	3.09 (1.4)	55.1 (245)	15.4 (68)
04□□E41D	4.61 (117)	3.46 (87)	2.68 (68.1)	3.0	0.31 (8)	3.15 (80)	3.54 (90)	0.28 (7)	0.551 (14)	2.76 (70)	0.63 (16)	0.12 (3)	0.20 (5)	0.20 (5)		400 (0.53)	11.2 (1.27)			4.63 (2.1)		

Note: The quoted allowable radial load is the value at a position 0.98in (25mm) from the mounting surface.

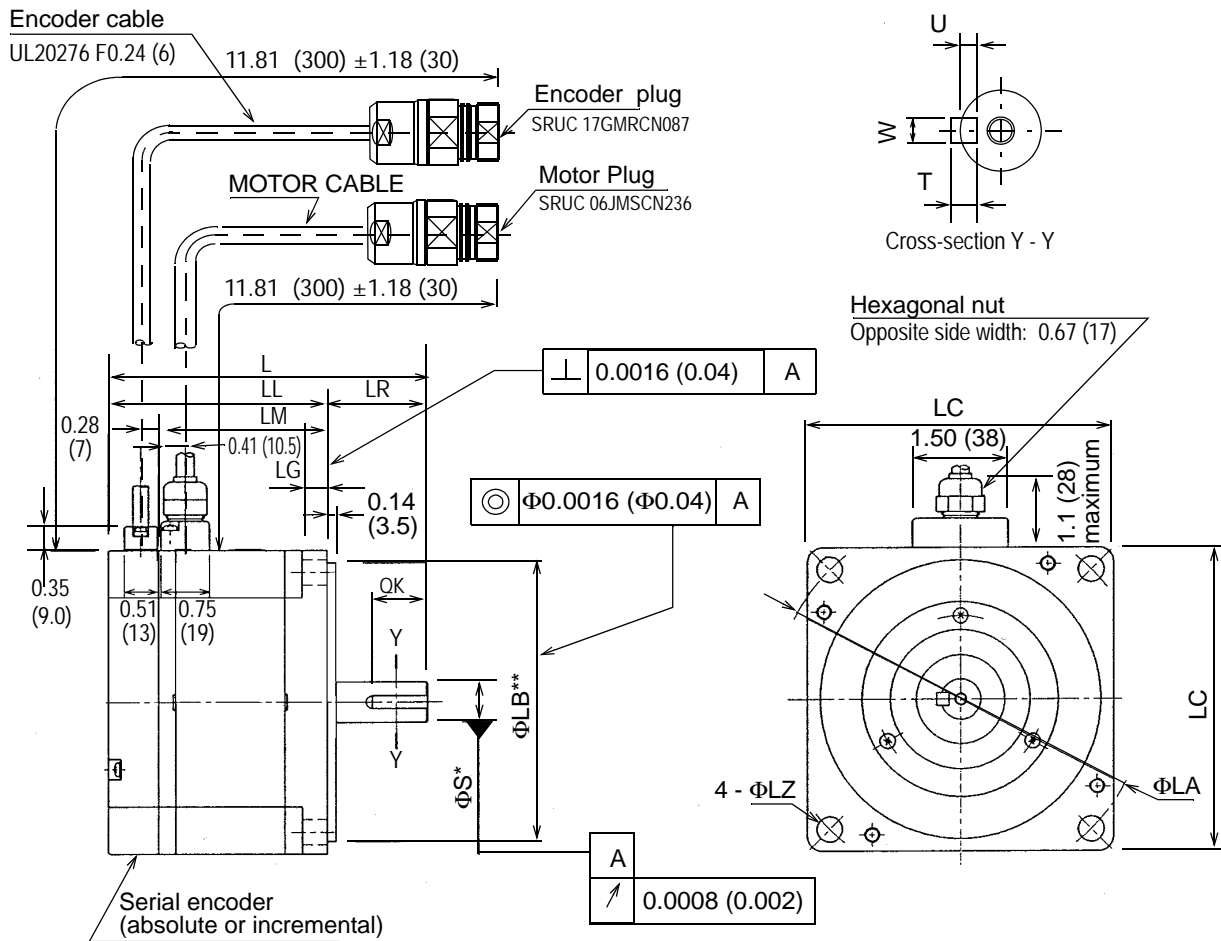
†Some motor dimensions vary for motors with the optional shaft seal: See p.9 for details.

Specified Tolerances				
Dimension	*ΦS		**ΦLB	
Unit	Diameter	Tolerance	Diameter	Tolerance
in	0.5512	+0.0000-0.0004	2.7559	+0.0000 -0.0012
mm	14.000	+0.000 -0.011	70.000	+0.000 -0.030

Interconnection Connector Specifications: See p.1

100/200V Single-phase Sigma II Servo Systems

- 750W (1.01hp)



SGMPH Servomotors

Type SGMPH-	L	LL	LM	LR	LG	LC	ΦLA	ΦLZ	ΦS*	ΦLB**	Key				Voltage V	Output W (hp)	Torque in·lb (N·m)	Time Rating	Rated Speed (rpm)	Approx Mass/lb (kg)	Allowable Radial Load lb (N)	Allowable Thrust Load lb (N)
											OK	U	W	T								
08□E41D	4.98 (126.5)	3.41 (86.5)	2.63 (66.7)	1.57 (40)	0.39 (10)	4.72 (120)	5.71 (145)	0.39 (10)	0.63 (16)	4.33 (110)	0.87 (22)	0.12 (3)	0.20 (5)	0.20 (5)	200	750 (1.01)	21.1 (2.39)	Continuous	3000	9.26 (4.2)	88.1 (392)	33.0 (147)

Note: The quoted allowable radial load is the value at a position 1.38in (35mm) from the motor mounting surface.

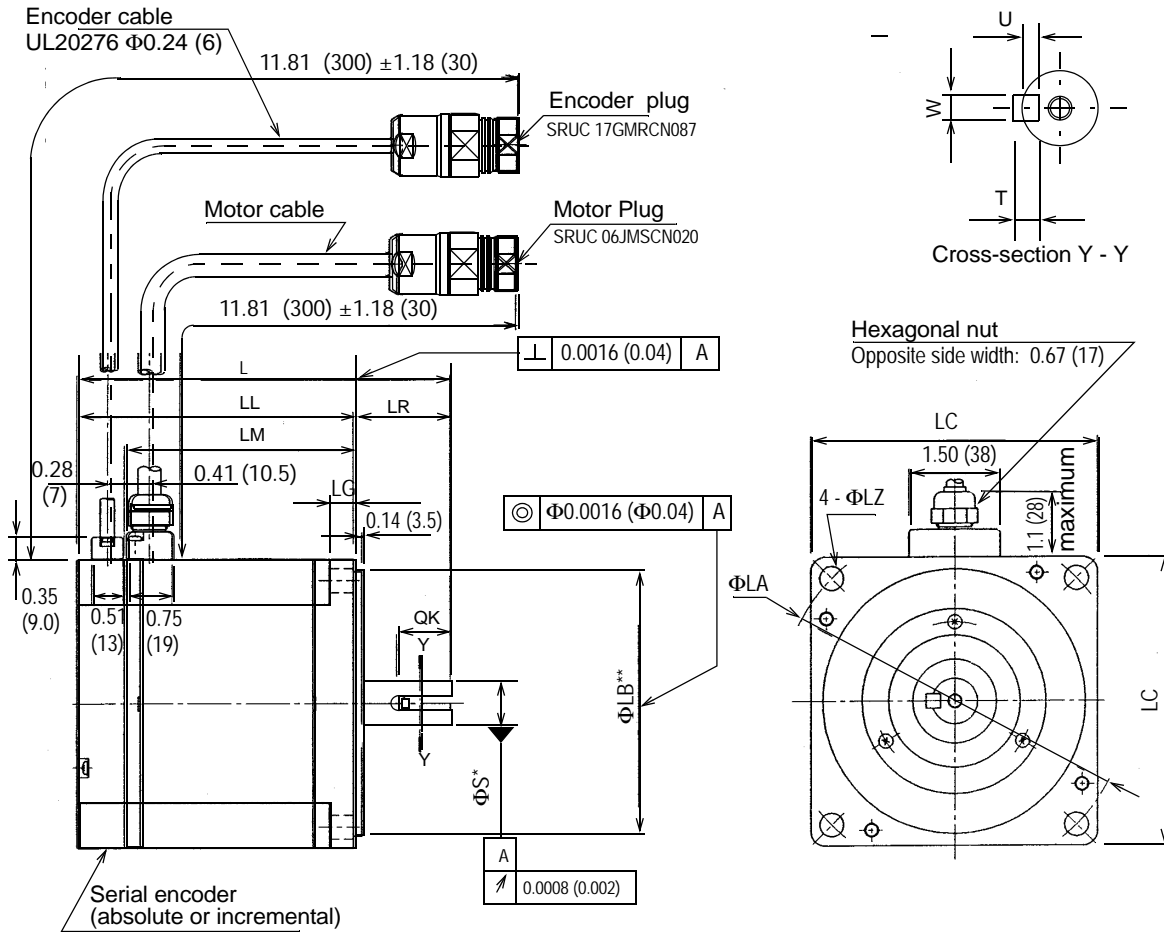
†Some motor dimensions vary for motors with the optional shaft seal: See p.9 for details.

Specified Tolerances				
Dimension	*ΦS		**ΦLB	
Unit	Diameter	Tolerance	Diameter	Tolerance
in	0.6299	+0.0000-0.0004	4.3307	+0.0000 -0.0014
mm	16.000	+0.000 -0.011	110.000	+0.000 -0.035

Interconnection Connector Specifications: See p.1

100/200V Single-phase Sigma II Servo Systems

- 1500W (2.0hp)



SGMPH Servomotors

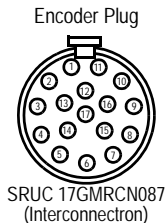
Type SGMPH-	L	LL	LM	LR	LG	LC	ΦLA	ΦLZ	ΦS*	ΦLB**	Key				Voltage V	Output W (hp)	Torque in-lb (N-m)	Time Rating	Rated Speed (rpm)	Approx Mass lb (kg)	Allowable Radial Load lb (N)	Allowable Thrust Load lb (N)
											QK	U	W	T								
15□□E41D	6.08 (154.5)	4.51 (114.5)	3.73 (94.7)	1.57 (40)	0.39 (10)	4.72 (120)	5.71 (145)	0.39 (10)	0.75 (19)	4.33 (110)	0.87 (22)	0.14 (3.5)	0.24 (6)	0.24 (6)	200	1500 (2.0)	42.1 (4.77)	Continuous	3000	14.55 (6.6)	110 (490)	33.0 (147)

Note: The quoted allowable radial load is the value at a position 1.38in (35mm) from the motor mounting surface.

†Some motor dimensions vary for motors with the optional shaft seal: See p.9 for details.

Specified Tolerances				
Dimension	*ΦS		**ΦLB	
Unit	Diameter	Tolerance	Diameter	Tolerance
in	0.7480	+0.0000-0.0005	4.3307	+0.0000 -0.0014
mm	19.000	+0.000 -0.013	110.000	+0.000 -0.035

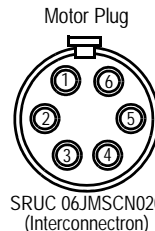
Interconnection Connector Specifications



Incremental Terminal Specifications		
Pin Number	Description	Color
1*	Battery -	—
2*	Battery * (3.6V)	—
3	Data +	Blue
4	Data-	Blue/White
5 - 7, 10 - 17	Free	—
8	+5V (Power Supply)	Red
9	0V (Power Supply)	Black
Connector Case	FG (Frame Ground)	Shield wire

*Note: Incremental Terminal pins number 1 and 2 are connectors used for 16-bit absolute encoder option only.

Mating Connector: SPNA17HFRON16900E3 (Interconnector)



Motor Wiring Specifications		
Pin No.	Description	Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Blue
6	FG (Frame Ground)	Green/Yellow

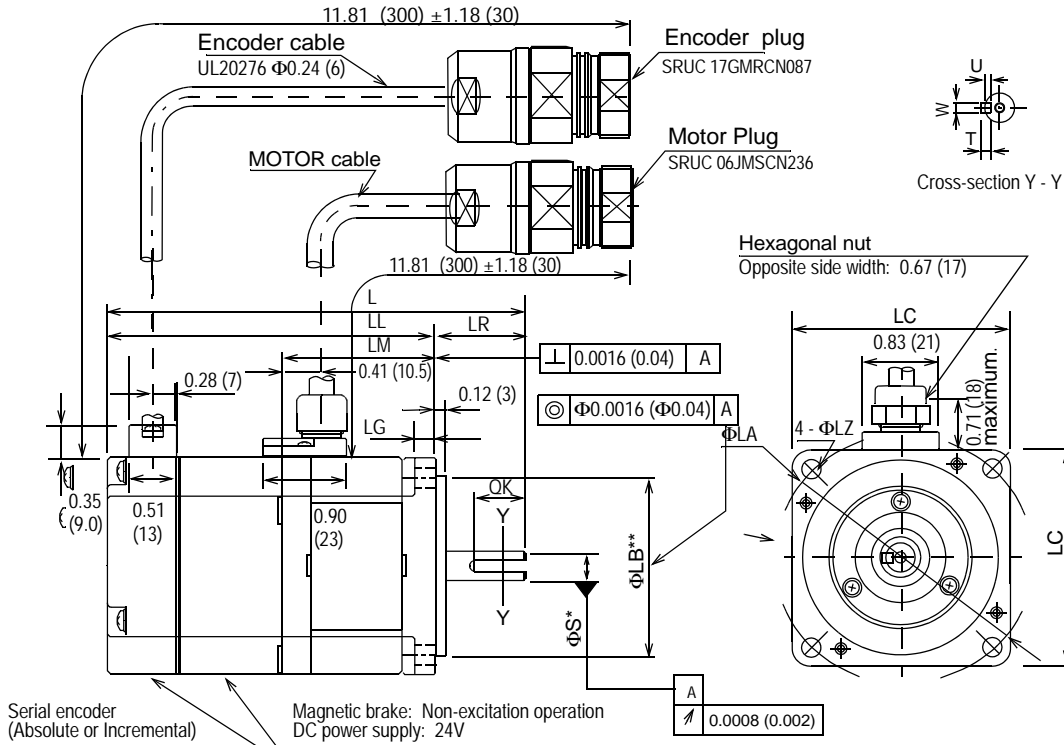
Mating Connector: SPNA06KFSDN169 (Interconnector)

100/200V Single-phase Sigma II Servo Systems

(2) 13-Bit Incremental or 16-Bit Absolute Encoder, with Brake

- Note:
1. The keyway complies with JIS B1301-1976 (precision). A straight key is supplied.
 2. The electromagnetic brake is only to hold the load in position and cannot be used to stop the motor.
 3. Conforms to the IP67 enclosure, excluding the shaft (optional shaft seal available).

• **100W (0.13hp)**



Type SGMPH-	L	LL	LM	LR	LG	LC	ΦLA	ΦLZ	ΦS*	ΦLB**	Key				Voltage (V)	Output W (hp)	Torque in-lb (N-m)	Time Rating	Rated Speed (rpm)	Approx Mass (kg)	Allowable Radial Load (lb (N))	Allowable Thrust (lb (N))
											QK	U	W	T								
01□E4CD	4.57 (116)	3.58 (91)	1.67 (42.5)	0.98 (25)	0.24 (6)	2.36 (60)	2.76 (70)	0.22 (5.5)	0.315 (8)	1.968 (50)	0.55 (14)	0.071 (1.8)	0.12 (3)	0.12 (3)	200	100 (0.13)	2.81 (0.318)	Continuous	3000	1.5 (0.7)	17.5 (78)	11.0 (49)

Note: The quoted allowable radial load is the value at a position 0.79in (20mm) from the motor mounting surface.

†Some motor dimensions vary for motors with the optional shaft seal: See p.9 for details.

Specified Tolerances				
Dimension	*ΦS		**ΦLB	
Unit	Diameter	Tolerance	Diameter	Tolerance
in	0.3150	+0.0000-0.0004	1.9685	+0.0000 -0.0010
mm	8.000	+0.000 -0.009	50.000	+0.000 -0.025

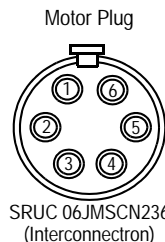
Interconnection Connector Specifications



Incremental Terminal Specifications		
Pin Number	Description	Color
1*	Battery -	-
2*	Battery * (3.6V)	-
3	Data +	Blue
4	Data-	Blue/White
5 - 7, 10 - 17	Free	-
8	+5V (Power Supply)	Red
9	0V (Power Supply)	Black
Connector Case	FG (Frame Ground)	Shield wire

*Note: Incremental Terminal pins number 1 and 2 are connectors used for 16-bit absolute encoder option only.

Mating Connector: SPNA17HFRON16900E3 (Interconnector)

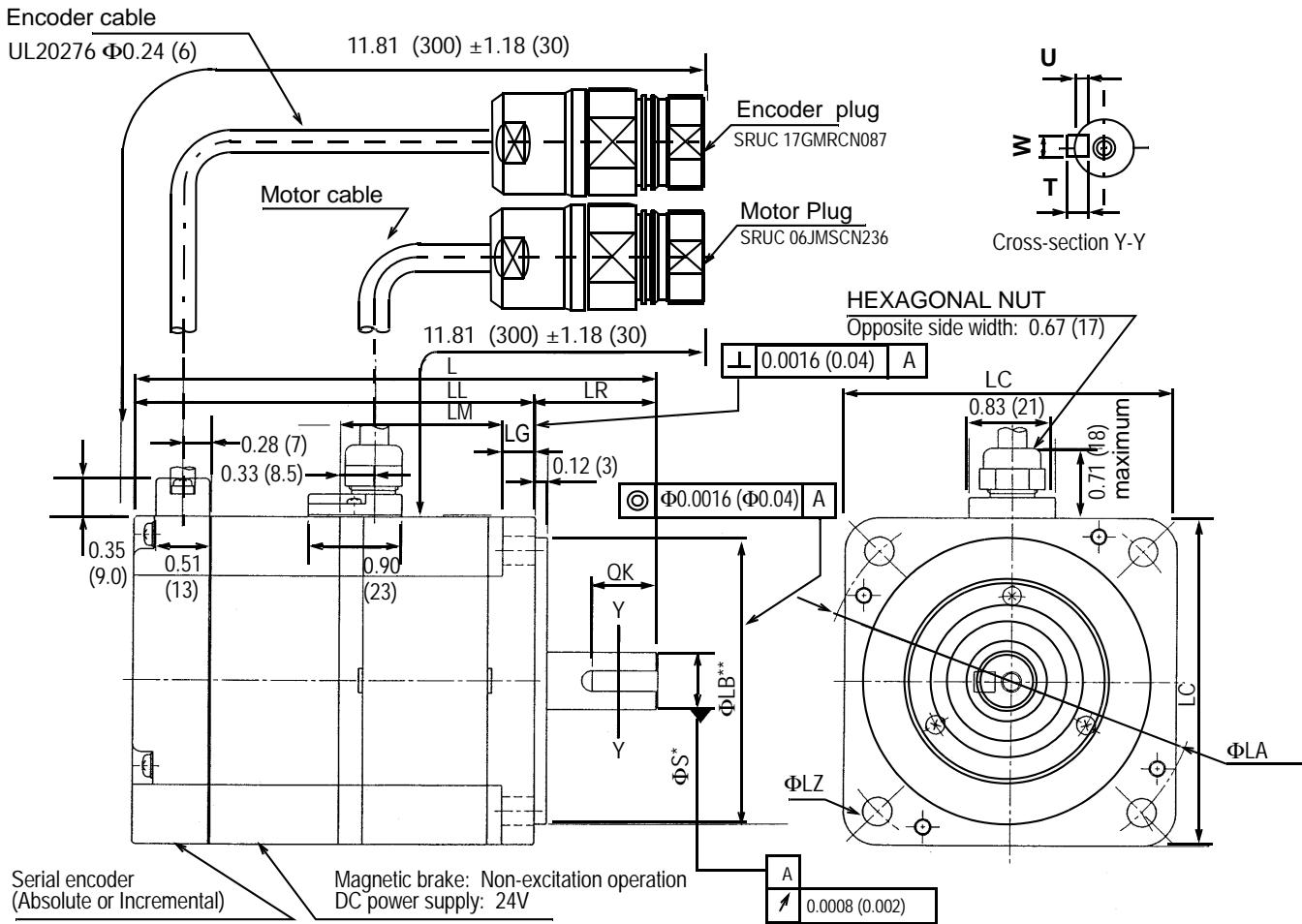


Motor Wiring Specifications		
Pin Number	Description	Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Blue
4	Holding Brake	Black
5	Holding Brake	Black
6	FG (Frame Ground)	Green/Yellow

Mating Connector: SPNA06KFSDN169 (Interconnector)

100/200V Single-phase Sigma II Servo Systems

- 200W (0.27hp), 400W (0.53hp)



SGMPH
Servomotors

Type SGMPH-	L	LL	LM	LR	LG	LC	ΦLA	ΦLZ	ΦS*	ΦLB**	Key				Voltage V	Output W (hp)	Torque in-lb (N·m)	Time Rating	Rated Speed (rpm)	Approx Mass lb (kg)	Allowable Radial Load lb (N)	Allowable Thrust Load lb (N)
											QK	U	W	T								
02□□E4CD	5.06 (128.5)	3.88 (98.5)	1.89 (48.1)	1.18 (30)	0.31 (8)	3.15 (80)	3.54 (90)	0.28 (7)	0.551 (14)	2.756 (70)	0.63 (16)	0.12 (3)	0.20 (5)	0.20 (5)	200 (0.27)	5.64 (0.637)	Continuous	3000	4.2 (1.9)	55.1 (245)	15.29 (68)	
04□□E4CD	5.85 (148.5)	4.67 (118.5)	2.68 (68.1)											400 (0.53)	11.2 (1.27)			5.7 (2.6)				

Note: The quoted allowable radial load is the value at a position 0.98in (25mm) from the motor mounting surface.

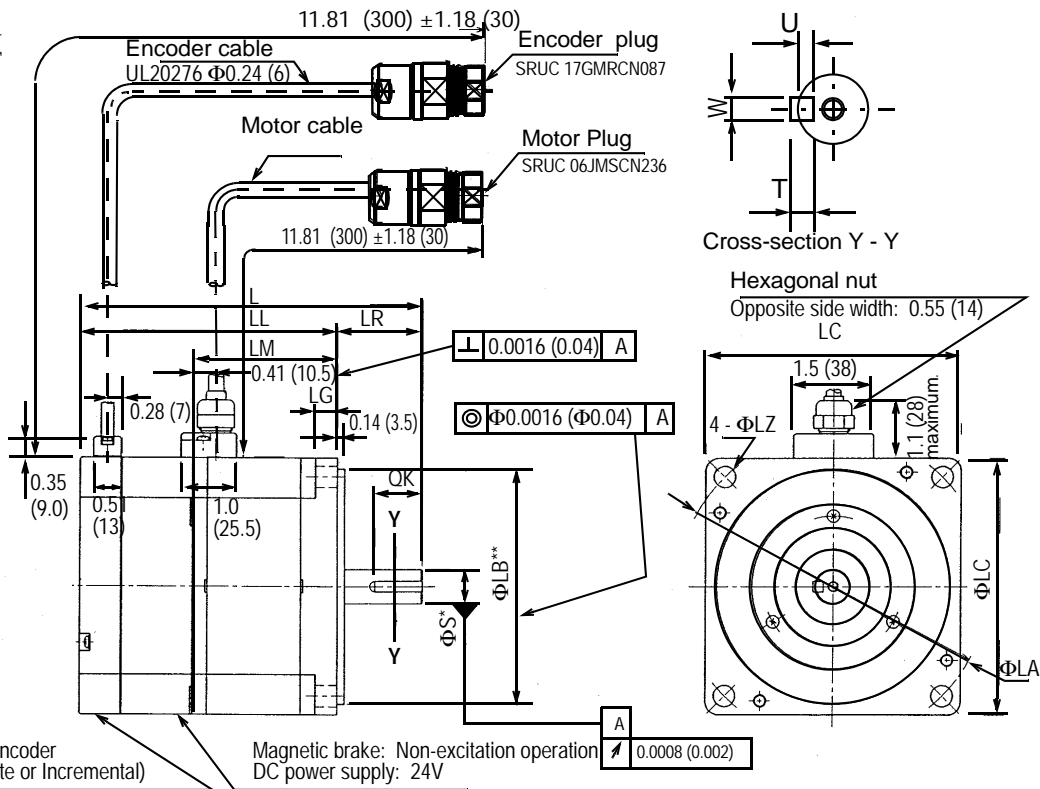
†Some motor dimensions vary for motors with the optional shaft seal: See p.9 for details.

Specified Tolerances				
Dimension	*ΦS		**ΦLB	
Unit	Diameter	Tolerance	Diameter	Tolerance
in	0.5512	+0.0000-0.0004	2.7559	+0.0000 -0.0012
mm	14.000	+0.000 -0.011	70.000	+0.000 -0.030

Interconnection Connector Specifications: See p.5.

100/200V Single-phase Sigma II Servo Systems

- 750W (1.01hp)



SGMPH Servomotors

Type SGMPH-	L	LL	LM	LR	LG	LC	ΦLA	ΦLZ	ΦS*	ΦLB**	Key				Voltage V	Output W (hp)	Torque in-lb (N·m)	Time Rating	Rated Speed (rpm)	Approx Mass lb (kg)	Allowable Radial Load lb (N)	Allowable Thrust Load lb (N)
											OK	U	W	T								
08□□E4CD	6.42 (163)	4.84 (123)	2.63 (66.7)	1.57 (40)	0.39 (10)	4.72 (120)	5.71 (145)	0.39 (10)	0.63 (16)	4.33 (110)	0.87 (22)	0.12 (3)	0.20 (5)	0.20 (5)	200	750 (1.01)	21.15 (2.39)	Continuous	3000	12.6 (5.7)	88.1 (392)	33.0 (147)

Note: The quoted allowable radial load is the value at a position 1.38in (35mm) from the motor mounting surface.

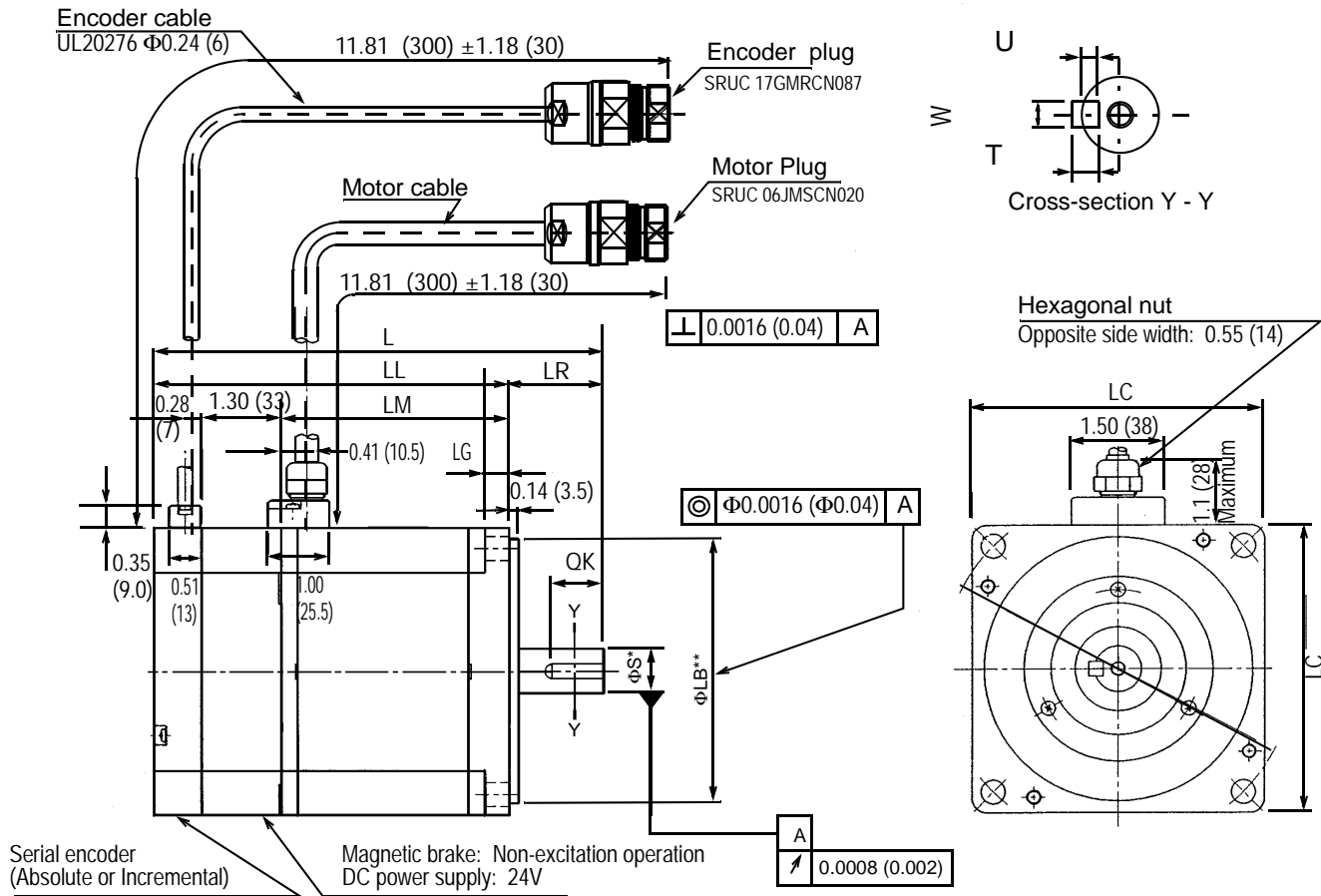
†Some motor dimensions vary for motors with the optional shaft seal: See p.9 for details.

Specified Tolerances				
Dimension	*ΦS		**ΦLB	
Unit	Diameter	Tolerance	Diameter	Tolerance
in	0.6299	+0.0000-0.0004	4.3307	+0.0000 -0.0014
mm	16.000	+0.000 -0.011	110.000	+0.000 -0.035

Interconnection Connector Specifications: See p.5.

100/200V Single-phase Sigma II Servo Systems

- 1500W (2.0hp)**



**SGMPH
Servomotors**

Type SGMPH-	L	LL	LM	LR	LG	LC	ΦLA	ΦLZ	ΦS*	ΦLB**	Key				Voltage V	Output W (hp)	Torque in-lb (N·m)	Time Rating	Rated Speed (rpm)	Approx Mass lb (kg)	Allowable Radial Load lb (N)	Allowable Thrust Load lb (N)
											QK	U	W	T								
15□□E4CD	7.40 (188)	5.83 (148)	3.73 (94.7)	1.57 (40)	0.39 (10)	4.72 (120)	5.71 (145)	0.39 (10)	0.75 (19)	4.33 (110)	0.87 (22)	0.14 (3.5)	0.24 (6)	0.24 (6)	200	1500 (2.02)	42.1 (4.77)	Contin- uous	3000	17.9 (8.1)	110 (490)	33.0 (147)

Note: The quoted allowable radial load is the value at a position 1.38in (35mm) from the motor mounting surface.

†Some motor dimensions vary for motors with the optional shaft seal: See p.9 for details.

Specified Tolerances				
Dimension	*ΦS		**ΦLB	
Unit	Diameter	Tolerance	Diameter	Tolerance
in	0.7480	+0.0000-0.0005	2.7559	+0.0000 -0.0014
mm	19.000	+0.000 -0.013	70.000	+0.000 -0.035

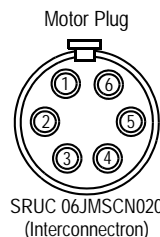
Interconnection Connector Specifications



Incremental Terminal Specifications		
Pin Number	Description	Color
1*	Battery -	—
2*	Battery + (3.6V)	—
3	Data +	Blue
4	Data -	Blue/White
5 - 7, 10 - 17	Free	—
8	+5V (Power Supply)	Red
9	0V (Power Supply)	Black
Connector Case	FG (Frame Ground)	Shield wire

*Note: Incremental Terminal pins number 1 and 2 are connectors used for 16-bit absolute encoder option only.

Mating Connector: SPNA17HFRON16900E3
(Interconnector)

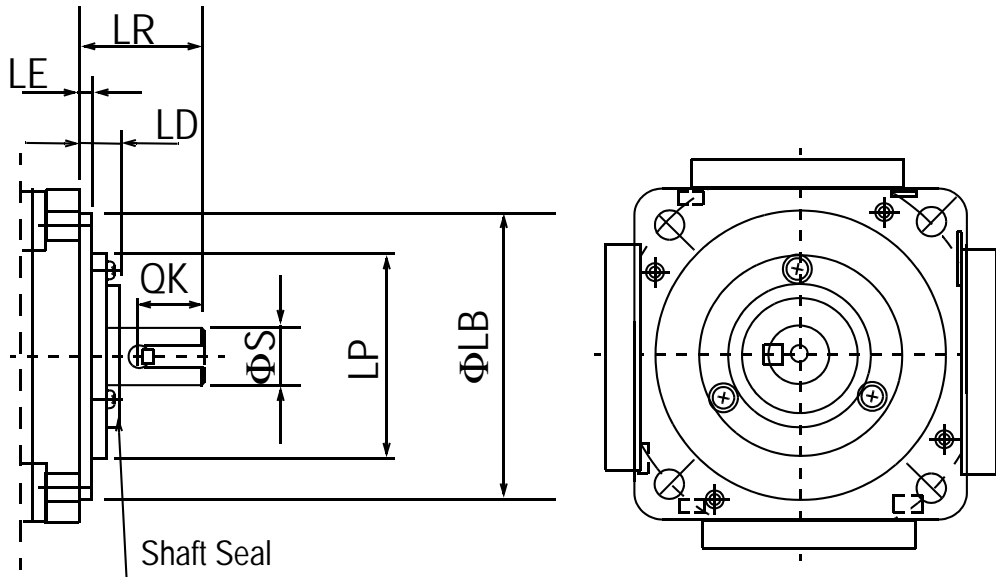


Motor Wiring Specifications		
Pin No.	Description	Color
1	Phase U	Red
2	Phase V	White
3	Phase W	Blue
4	Holding Brake	Black
5	Holding Brake	Black
6	FG (Frame Ground)	Green/Yellow

Mating Connector: SPNA06KFSDN169
(Interconnector)

Dimension Modifications for Motors with Optional Shaft Seal

SGMPH Servomotors



Type SGMPH-	QK	ΦLB*	ΦS*	LE	LR	LD	ΦLP
01	0.55 (14)	1.97 (50)	0.31 (8)	0.12 (3)	0.98 (25)	0.28 (7)	1.54 (39)
02	0.64 (16)	2.76 (70)	0.55 (14)		1.18 (30)	0.39 (10)	1.93 (49)
04				0.14 (3.5)	1.57 (40)	0.41 (10.5)	3.03 (77)
08	0.63 (16)						
15	0.75 (19)						

*Refer to the following table for tolerances for diameters LB and S.

Specified Tolerances				
Dimension	*ΦS		**ΦLB	
Unit	Diameter	Tolerance	Diameter	Tolerance
in	0.3150	+0.0000-0.0004	1.9685	+0.0000 -0.0010
	0.5512	+0.0000-0.0004	2.7559	+0.0000 -0.0014
	0.6299	+0.0000-0.0004	4.3307	+0.0000 -0.0014
	0.7480	+0.0000-0.0005		
mm	8.000	+0.000 -0.009	50.000	+0.000 -0.025
	14.000	+0.000 -0.011	70.000	+0.000 -0.035
	16.000	+0.000 -0.011	110.000	+0.000 -0.035
	19.000	+0.000 -0.013		

Torque Reduction Factor for SGMPH motors equipped with a shaft seal:

Servo Motor Model	01	02	04	08	15
Torque Reduction Factor	90%	90%	95%	95%	95%

For Example: The SGMPH-01 continuous and peak torque rating should be reduced to 90% of the listed catalog specification.