

DSW311HB

◆TECHNICAL DATA

CONTROL SYSTEM	: PULSE WIDTH CONTROL
OPERATING VOLTAGE	: 4.8V ONLY
OPERATING TRAVEL	: 30°/ ONE SIDE PULSE TRAVELING 370usec
DIRECTION	: COUNTERCLOCKWISE/ PULSE TRAVELING 1500 TO 1870
TEST VOLTAGE	: <u>AT 4.8V</u>
OPERATING SPEED	: 0.07sec/60°
DYNAMIC TORQUE	: 1.0Kg.cm(13.9oz.in)
DEAD BAND WIDTH	: 2us

◆FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 500,000 cycles
MOTOR TYPE	: METAL BRUSH 3POLE MOTOR
TOP BALL BEARING	: BALL BEARING
GEAR MATERIAL	: ALL HEAVY DUTY CARBONITE GEARS
HORN GEAR SPLINE	: 15 SEGMENTS/ Ø3.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 150mm(5.91in)
CONNECTOR WIRE STRAND COUNTER	: 0.12mmx7EA

◆DIMENSIONS

SIZE	: 23.0x11.4x25.1mm(0.91x0.45x0.99in)
WEIGHT	: 10g(0.35oz)



DSW315MG

◆TECHNICAL DATA

CONTROL SYSTEM	: PULSE WIDTH CONTROL
OPERATING VOLTAGE	: 4.8V~6.0V
OPERATING TRAVEL	: 30°/ ONE SIDE PULSE TRAVELING 370usec
DIRECTION	: COUNTERCLOCKWISE/ PULSE TRAVELING 1500 TO 1870
TEST VOLTAGE	: <u>AT 4.8V</u> AT 6.0V
OPERATING SPEED	: 0.14sec/60° 0.11sec/60°
DYNAMIC TORQUE	: 2.2Kg.cm(30.6oz.in) : 2.7Kg.cm(37.5oz.in)
DEAD BAND WIDTH	: 2us

◆FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 500,000 cycles
MOTOR TYPE	: LONG LIFE CORELESS MOTOR
TOP BALL BEARING	: BALL BEARING
GEAR MATERIAL	: ALL METAL GEARS(Anodizing horn gear)
HORN GEAR SPLINE	: 15 SEGMENTS/ Ø3.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 150mm(5.91in)
CONNECTOR WIRE STRAND COUNTER	: 0.12mmx7EA

◆DIMENTIONS

SIZE	: 23.0x11.4x25.8mm(0.91x0.45x0.94in)
WEIGHT	: 12.80g(0.45oz)



DSW410HB(torque type)

◆TECHNICAL DATA

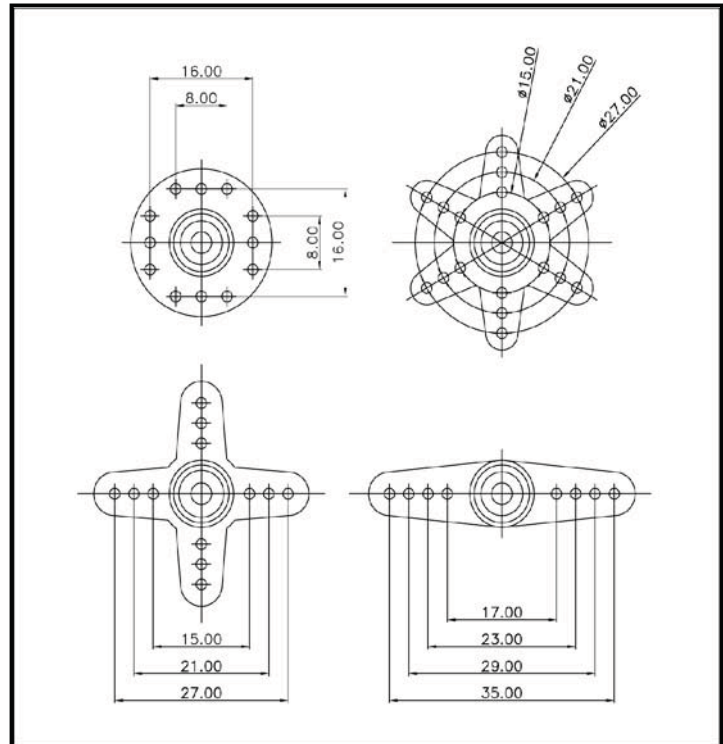
CONTROL SYSTEM	: PULSE WIDTH CONTROL	
OPERATING VOLTAGE	: 4.8V ~ 6.0V	
OPERATING TRAVEL	: 30° / ONE SIDE PULSE TRAVELING 370usec	
DIRECTION	: COUNTERCLOCKWISE/ PULSE TRAVELING 1500 TO 1870	
TEST VOLTAGE	: AT 4.8V	: AT 6.0V
OPERATING SPEED	: 0.16s/60°	: 0.12s/60°
DYNAMIC TORQUE	: 2.5Kg.cm(34.7oz.in)	: 3.0Kg.cm(41.7oz.in)
DEAD BAND WIDTH	: 2us	

◆FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 500,000 cycles
MOTOR TYPE	: COLED METAL BRUSH 3POLE MOTOR
BALL BEARING	: BALL BEARING
GEAR MATERIAL	: ALL HEAVY DUTY CARBONITE GEARS
HORN GEAR SPLINE	: 25 SEGMENTS/ Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx30EA

◆DIMENTIONS

SIZE	: 30.0x13.0x31.7mm(1.18x0.51x1.24in)
WEIGHT	: 17.6g(0.62oz)



DSW411HB(Speed type)

◆TECHNICAL DATA

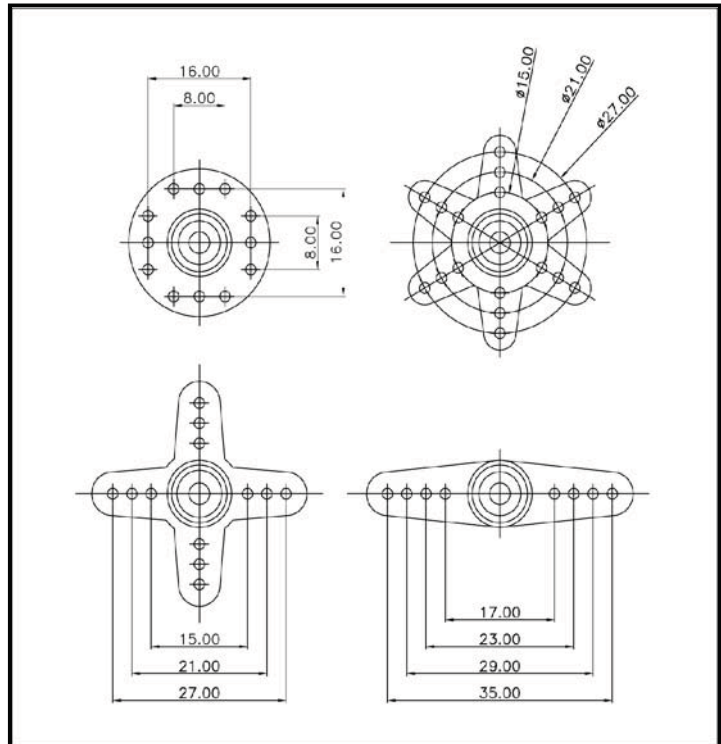
CONTROL SYSTEM	: PULSE WIDTH CONTROL	
OPERATING VOLTAGE	: 4.8V ~ 6.0V	
OPERATING TRAVEL	: 30°/ ONE SIDE PULSE TRAVELING 370usec	
DIRECTION	: COUNTERCLOCKWISE/ PULSE TRAVELING 1500 TO 1870	
TEST VOLTAGE	: AT 4.8V	: AT 6.0V
OPERATING SPEED	: 0.12s/60°	: 0.10s/60°
DYNAMIC TORQUE	: 2.0Kg.cm(27.8oz.in)	: 2.5Kg.cm(34.7oz.in)
DEAD BAND WIDTH	: 2us	

◆FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 500,000 cycles
MOTOR TYPE	: COILED METAL BRUSH 3POLE MOTOR
BALL BEARING	: BALL BEARING
GEAR MATERIAL	: ALL HEAVY DUTY CARBONITE GEARS
HORN GEAR SPLINE	: 25 SEGMENTS/ Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx30EA

◆DIMENTIONS

SIZE	: 30.0x13.0x31.7mm(1.18x0.51x1.24in)
WEIGHT	: 17.6g(0.62oz)



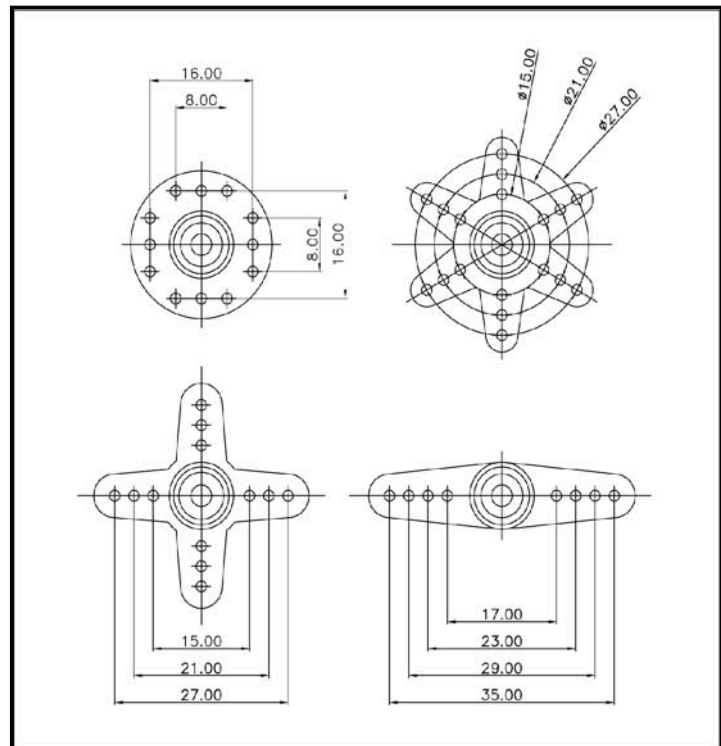
DSW413MG(speed type)

◆TECHNICAL DATA

CONTROL SYSTEM	: PULSE WIDTH CONTROL	
OPERATING VOLTAGE	: 4.8V ~ 6.0V	
OPERATING TRAVEL	: 30°/ ONE SIDE PULSE TRAVELING 370usec	
DIRECTION	: COUNTERCLOCKWISE/ PULSE TRAVELING 1500 TO 1870	
TEST VOLTAGE	: AT 4.8V	: AT 6.0V
OPERATING SPEED	: 0.17s/60°	: 0.13s/60°
DYNAMIC TORQUE	: 2.8Kg.cm(38.9oz.in)	: 3.4Kg.cm(47.2oz.in)
DEAD BAND WIDTH	: 2us	

◆FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 500,000 cycles
MOTOR TYPE	: COLED METAL BRUSH 3POLE MOTOR
TOP BALL BEARING	: BALL BEARING
GEAR MATERIAL	: 1st HEAVY DUTY CARBONITE GEAR & METAL GEARS
HORN GEAR SPLINE	: 25 SEGMENTS/ Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx30EA
◆DIMENTIONS	
SIZE	: 30.0x13.0x31.7mm(1.18x0.51x1.24in)
WEIGHT	: 20.9g(0.73oz)



DSW414MG(torque type)

◆TECHNICAL DATA

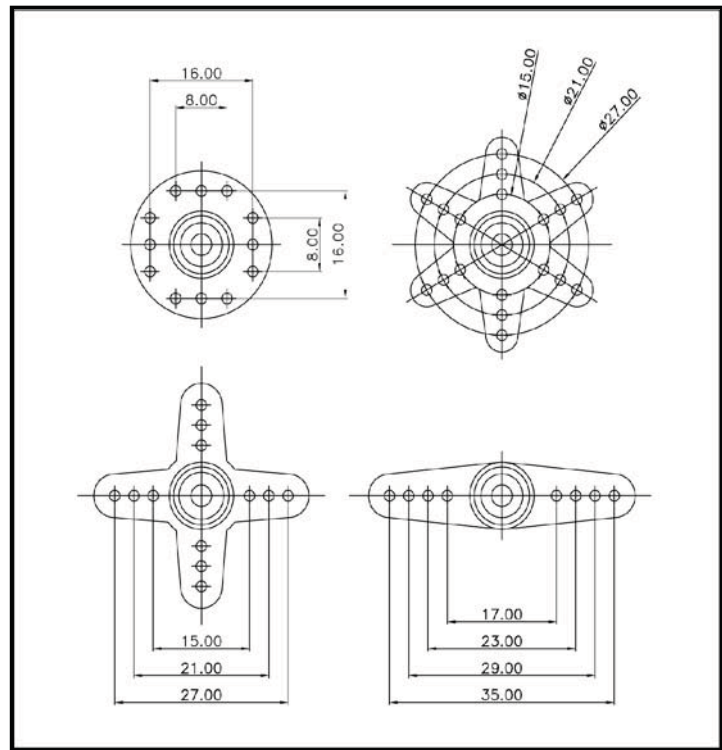
CONTROL SYSTEM	: PULSE WIDTH CONTROL
OPERATING VOLTAGE	: 4.8V ~ 6.0V
OPERATING TRAVEL	: 30°/ ONE SIDE PULSE TRAVELING 370usec
DIRECTION	: COUNTERCLOCKWISE/ PULSE TRAVELING 1500 TO 1870
TEST VOLTAGE	: AT 4.8V AT 6.0V
OPERATING SPEED	: 0.22s/60° 0.18s/60°
DYNAMIC TORQUE	: 4.0Kg.cm(55.5oz.in) 4.7Kg.cm(65.3oz.in)
DEAD BAND WIDTH	: 2us

◆FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 500,000 cycles
MOTOR TYPE	: COLED METAL BRUSH 3POLE MOTOR
TOP BALL BEARING	: BALL BEARING
GEAR MATERIAL	: 1st HEAVY DUTY CARBONITE GEAR & METAL GEARS
HORN GEAR SPLINE	: 25 SEGMENTS/ Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx30EA

◆DIMENTIONS

SIZE	: 30.0x13.0x31.7mm(1.18x0.51x1.24in)
WEIGHT	: 20.8g(0.73oz)



DSW415MG

◆ TECHNICAL DATA

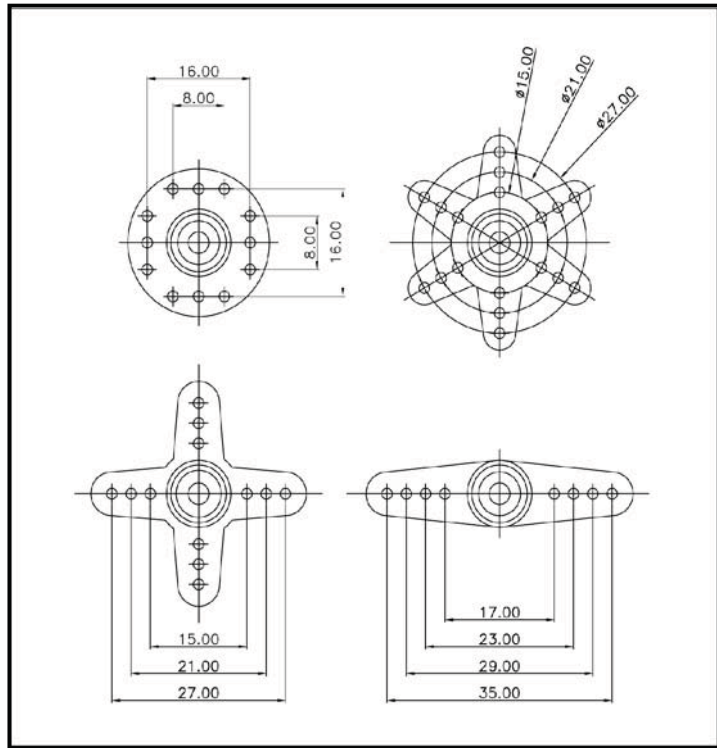
CONTROL SYSTEM	: PULSE WIDTH CONTROL	
OPERATING VOLTAGE	: 4.8V ~ 6.0V	
OPERATING TRAVEL	: 30° / ONE SIDE PULSE TRAVELING 370usec	
DIRECTION	: COUNTERCLOCKWISE / PULSE TRAVELING 1500 TO 1870	
TEST VOLTAGE	: AT 4.8V	: AT 6.0V
OPERATING SPEED	: 0.15s/60°	: 0.12s/60°
DYNAMIC TORQUE	: 4.8Kg.cm(66.7oz.in)	: 5.6Kg.cm(77.8oz.in)
DEAD BAND WIDTH	: 2us	

◆ FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 500,000 cycles
MOTOR TYPE	: CORELESS MOTOR
TOP BALL BEARING	: BALL BEARING
GEAR MATERIAL	: 1st HEAVY DUTY CARBONITE GEAR & METAL GEARS
HORN GEAR SPLINE	: 25 SEGMENTS / Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx30EA

◆ DIMENSIONS

SIZE	: 30.0x13.0x33.3mm(1.18x0.51x1.31in)
WEIGHT	: 25.8g(0.91oz)



DSW416MG

◆ TECHNICAL DATA

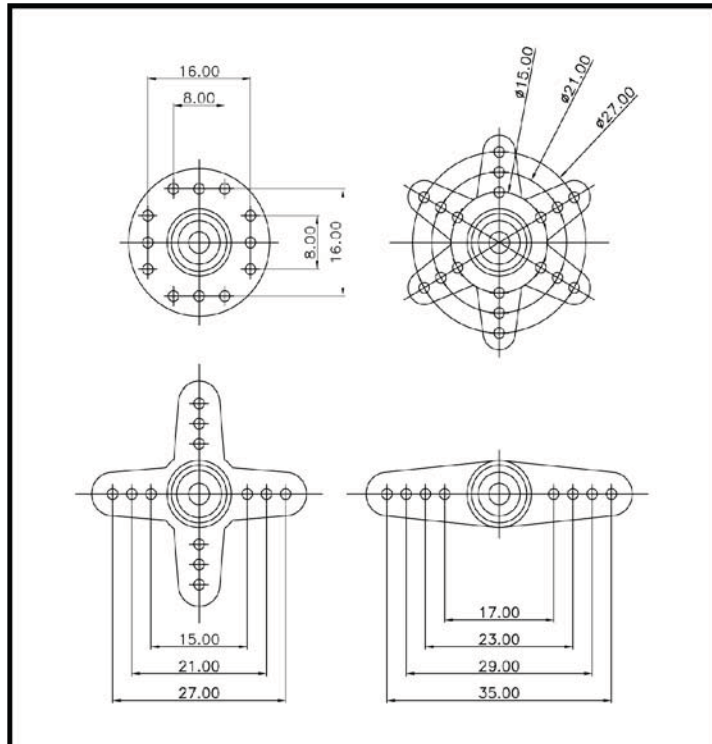
CONTROL SYSTEM	: PULSE WIDTH CONTROL	
OPERATING VOLTAGE	: 4.8V ~ 6.0V	
OPERATING TRAVEL	: 30° / ONE SIDE PULSE TRAVELING 370usec	
DIRECTION	: COUNTERCLOCKWISE / PULSE TRAVELING 1500 TO 1870	
TEST VOLTAGE	: AT 4.8V	: AT 6.0V
OPERATING SPEED	: 0.07s/60°	: 0.06s/60°
DYNAMIC TORQUE	: 2.4Kg.cm(33.3oz.in)	: 3.6Kg.cm(45.8oz.in)
DEAD BAND WIDTH	: 2us	

◆ FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 500,000 cycles
MOTOR TYPE	: CORELESS MOTOR
TOP BALL BEARING	: BALL BEARING
GEAR MATERIAL	: 1st HEAVY DUTY CARBONITE GEAR & METAL GEARS
HORN GEAR SPLINE	: 25 SEGMENTS / Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx30EA

◆ DIMENSIONS

SIZE	: 30.0x13.0x33.3mm(1.18x0.51x1.31in)
WEIGHT	: 24.8g(0.87oz)



DSW417MG

◆ TECHNICAL DATA

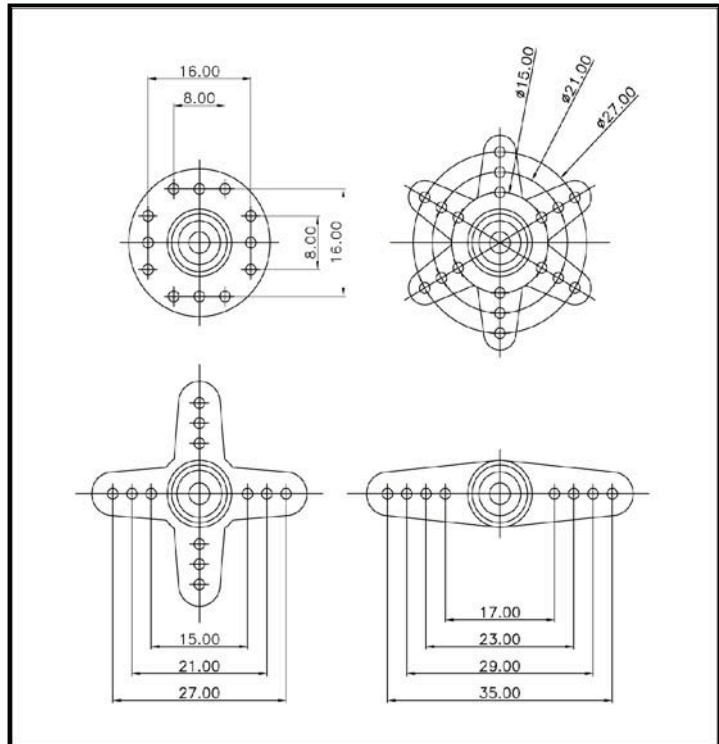
CONTROL SYSTEM	: PULSE WIDTH CONTROL
OPERATING VOLTAGE	: 4.8V ~ 6.0V
OPERATING TRAVEL	: 30° / ONE SIDE PULSE TRAVELING 370usec
DIRECTION	: COUNTERCLOCKWISE / PULSE TRAVELING 1500 TO 1870
TEST VOLTAGE	: <u>AT 4.8V</u> <u>AT 6.0V</u>
OPERATING SPEED	: 0.09s/60° 0.07s/60°
DYNAMIC TORQUE	: 1.7Kg.cm(23.6oz.in) 2.1Kg.cm(29.2oz.in)
DEAD BAND WIDTH	: 2us

◆ FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 500,000 cycles
MOTOR TYPE	: COILED METAL BRUSH 3POLE MOTOR
TOP BALL BEARING	: BALL BEARING
GEAR MATERIAL	: 1st HEAVY DUTY CARBONITE GEAR & METAL GEARS
HORN GEAR SPLINE	: 25 SEGMENTS / Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx30EA

◆ DIMENSIONS

SIZE	: 30.0x13.0x31.7mm(1.18x0.51x1.24in)
WEIGHT	: 20.1g(0.71oz)



DSW613HB

◆ TECHNICAL DATA

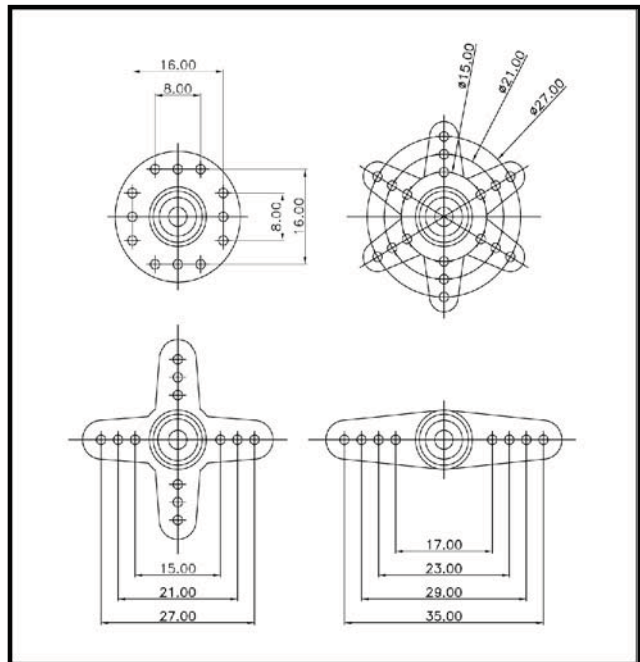
CONTROL SYSTEM	: PULSE WIDTH CONTROL
OPERATING VOLTAGE	: 4.8V ~ 6.0V
OPERATING TRAVEL	: 30°/ ONE SIDE PULSE TRAVELING 323usec
DIRECTION	: COUNTERCLOCKWISE/ PULSE TRAVELING 1500 TO 1823
TEST VOLTAGE	: <u>AT 4.8V</u> <u>AT 6.0V</u>
OPERATING SPEED	: 0.13s/60° 0.10s/60°
DYNAMIC TORQUE	: 10.8Kg.cm(149.9oz.in) 12.5Kg.cm(173.6oz.in)
IDLE CURRENT	: 10mA AT STOPPED
RUNNING CURRENT	: 150mA AT NO LOAD
DEAD BAND WIDTH	: 2us

◆ FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 1,000,000 cycles
MOTOR TYPE	: CORELESS MOTOR
BALL BEARING	: DOUBLE BALL BEARINGS
GEAR MATERIAL	: ALL HEAVY DUTY CARBONITE GEARS
HORN GEAR SPLINE	: 25 SEGMENTS/ Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx60EA

◆ DIMENSIONS

SIZE	: 39.5x19.5x39.8mm(1.55x0.77x1.57in)
WEIGHT	: 47.6g(1.68oz)



DSW611MG

◆ TECHNICAL DATA

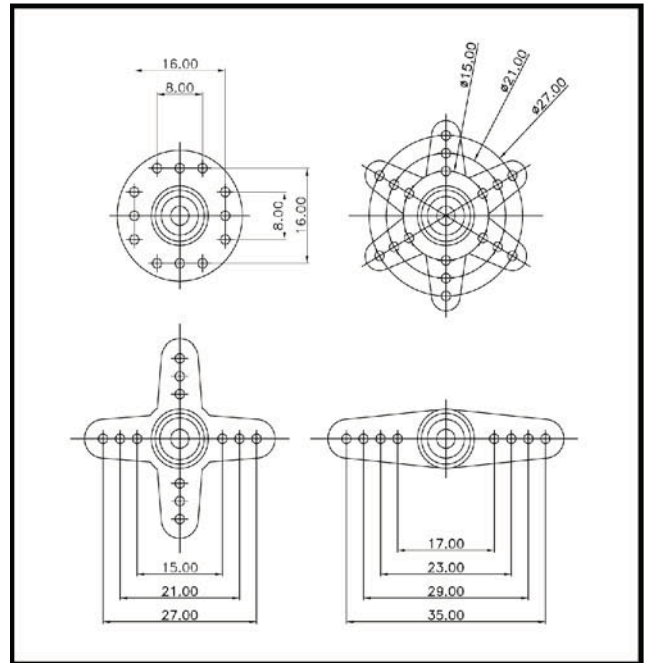
CONTROL SYSTEM	: PULSE WIDTH CONTROL
OPERATING VOLTAGE	: 4.8V ~ 6.0V
OPERATING TRAVEL	: 30° / ONE SIDE PULSE TRAVELING 323usec
DIRECTION	: COUNTERCLOCKWISE / PULSE TRAVELING 1500 TO 1823
TEST VOLTAGE	: <u>AT 4.8V</u> <u>AT 6.0V</u>
OPERATING SPEED	: 0.14s/60° 0.11s/60°
DYNAMIC TORQUE	: 11.2Kg.cm(155.5oz.in) 13.3Kg.cm(184.7oz.in)
DEAD BAND WIDTH	: 2us

◆ FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 1,000,000 cycles
MOTOR TYPE	: CORELESS MOTOR
BALL BEARING	: DOUBLE BALL BEARINGS
GEAR MATERIAL	: 1st carbonite gear & METAL GEARS(Anodizing horn gear)
HORN GEAR SPLINE	: 25 SEGMENTS / Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx60EA

◆ DIMENSIONS

SIZE	: 39.5x19.5x39.8mm(1.55x0.77x1.57in)
WEIGHT	: 54.5g(1.92oz)



DSW613MG

◆ TECHNICAL DATA

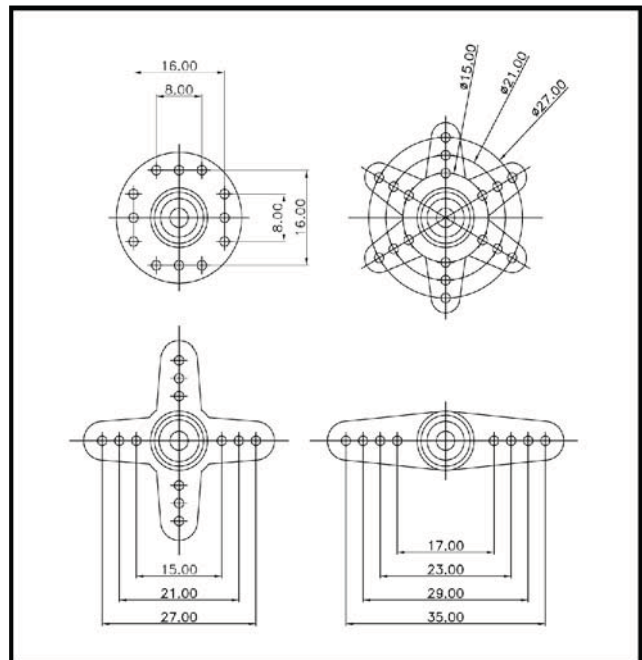
CONTROL SYSTEM	: PULSE WIDTH CONTROL
OPERATING VOLTAGE	: 4.8V ~ 6.0V
OPERATING TRAVEL	: 30° / ONE SIDE PULSE TRAVELING 323usec
DIRECTION	: COUNTERCLOCKWISE / PULSE TRAVELING 1500 TO 1823
TEST VOLTAGE	: <u>AT 4.8V</u> <u>AT 6.0V</u>
OPERATING SPEED	: 0.14s/60° 0.11s/60°
DYNAMIC TORQUE	: 11.4Kg.cm(158.3oz.in) 13.6Kg.cm(188.9oz.in)
DEAD BAND WIDTH	: 2us

◆ FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 1,000,000 cycles
MOTOR TYPE	: CORELESS MOTOR
BALL BEARING	: DOUBLE BALL BEARINGS
GEAR MATERIAL	: 1st carbonite gear & METAL GEARS(Anodizing horn gear)
HORN GEAR SPLINE	: 25 SEGMENTS / Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx60EA

◆ DIMENSIONS

SIZE	: 39.5x19.5x39.5mm(1.55x0.77x1.55in)
WEIGHT	: 57.1g(2.01oz)



DSW616MG

◆ TECHNICAL DATA

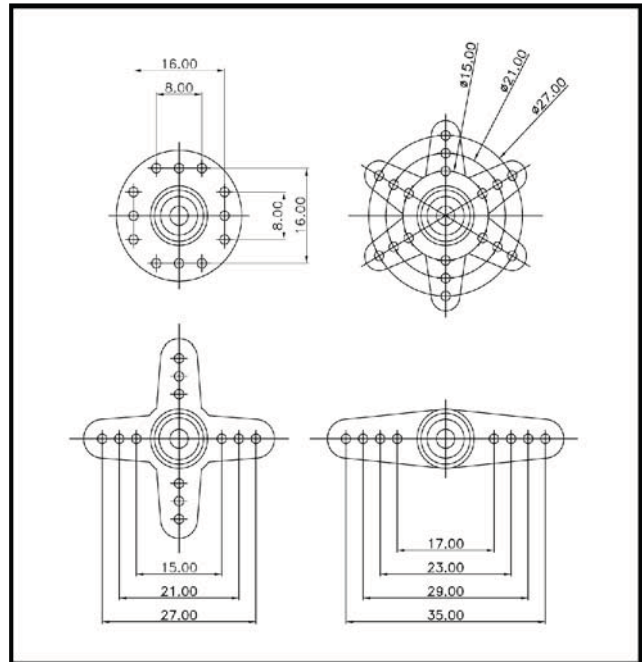
CONTROL SYSTEM	: PULSE WIDTH CONTROL
OPERATING VOLTAGE	: 4.8V ~ 6.0V
OPERATING TRAVEL	: 30° / ONE SIDE PULSE TRAVELING 323usec
DIRECTION	: COUNTERCLOCKWISE / PULSE TRAVELING 1500 TO 1823
TEST VOLTAGE	: <u>AT 4.8V</u> <u>AT 6.0V</u>
OPERATING SPEED	: 0.10s/60° 0.08s/60°
DYNAMIC TORQUE	: 7.0Kg.cm(87.49oz.in) 7.7Kg.cm(98.60oz.in)
DEAD BAND WIDTH	: 2us

◆ FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 1,000,000 cycles
MOTOR TYPE	: CORELESS MOTOR
BALL BEARING	: DOUBLE BALL BEARINGS
GEAR MATERIAL	: 1st carbonite gear & METAL GEARS(Anodizing horn gear)
HORN GEAR SPLINE	: 25 SEGMENTS / Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx60EA

◆ DIMENSIONS

SIZE	: 39.5x19.5x39.5mm(1.55x0.77x1.55in)
WEIGHT	: 56.1g(1.98oz)



DSW720MG

◆ TECHNICAL DATA

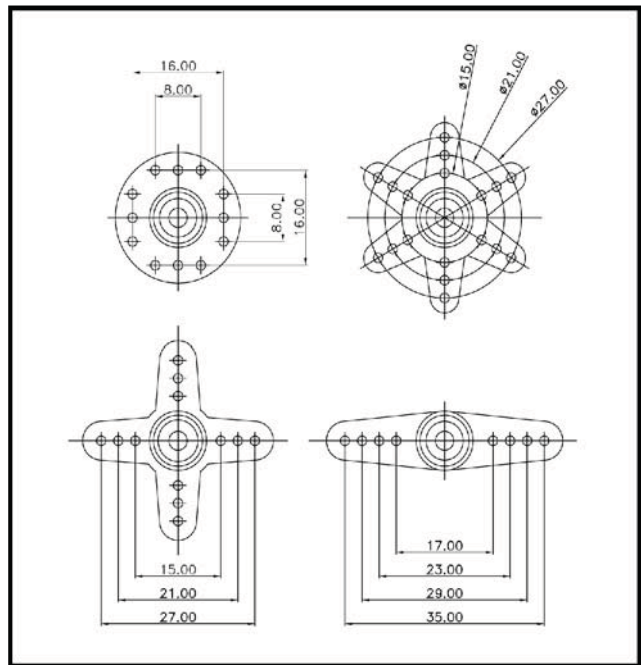
CONTROL SYSTEM	: PULSE WIDTH CONTROL
OPERATING VOLTAGE	: 4.8V ~ 6.0V
OPERATING TRAVEL	: 30° / ONE SIDE PULSE TRAVELING 323usec
DIRECTION	: COUNTERCLOCKWISE / PULSE TRAVELING 1500 TO 1823
TEST VOLTAGE	: <u>AT 4.8V</u> <u>AT 6.0V</u>
OPERATING SPEED	: 0.14s/60° 0.11s/60°
DYNAMIC TORQUE	: 11.4Kg.cm(158.3oz.in) 13.6Kg.cm(188.9oz.in)
DEAD BAND WIDTH	: 2us

◆ FEATURES

AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 1,000,000 cycles
MOTOR TYPE	: CORELESS MOTOR
BALL BEARING	: DOUBLE BALL BEARINGS
GEAR MATERIAL	: ALL METAL GEARS(Anodizing horn gear)
HORN GEAR SPLINE	: 25 SEGMENTS / Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx60EA

◆ DIMENSIONS

SIZE	: 39.5x19.5x39.5mm (1.55x0.77x1.55in)
WEIGHT	: 56.6g(1.99oz)



DSW730MG

◆ TECHNICAL DATA

CONTROL SYSTEM	: PULSE WIDTH CONTROL		
OPERATING VOLTAGE	: 4.8V ~ 7.4V		
OPERATING TRAVEL	: 30° / ONE SIDE PULSE TRAVELING 323usec		
DIRECTION	: COUNTERCLOCKWISE / PULSE TRAVELING 1500 TO 1823		
TEST VOLTAGE	: <u>AT 4.8V</u>	: <u>AT 6.0V</u>	: <u>AT 7.4V</u>
OPERATING SPEED	: 0.14s/60°	: 0.11s/60°	: 0.09s/60°
DYNAMIC TORQUE	: 11.4Kg.cm(158.3oz.in)	: 13.6Kg.cm(188.9oz.in)	: 16.1Kg.cm(223.6oz.in)
DEAD BAND WIDTH	: 2us		

◆ FEATURES

CASE	: Top, Middle, Bottom case METAL
AMPLIFIER TYPE	: DIGITAL PULSE WIDTH CONTROLLER & FET DRIVER
LONG LIFE POTENTIOMETER	: 1,000,000 cycles
MOTOR TYPE	: CORELESS MOTOR
BALL BEARING	: DOUBLE BALL BEARINGS
GEAR MATERIAL	: ALL METAL GEARS(Anodizing horn gear)
HORN GEAR SPLINE	: 25 SEGMENTS / Ø5.96(FUTABA TYPE)
SPLINED HORNS	: 4 CLASS
CONNECTOR WIRE LENGTH	: 300mm(10.63in)
CONNECTOR WIRE STRAND COUNTER	: 0.08mmx60EA

◆ DIMENSIONS

SIZE	: 39.5x19.5x39.5mm(1.55x0.77x1.55in)
WEIGHT	: 64.4g(2.27oz)

