DYNAMIXEL-X

Waterproof Actuator, IP68

- XW Series Waterproof, IP68 (1m, 24hr)
- Waterproof Cable, Hollow Structure
- Normal Cable, Extension Cable

Features

DYNAMIXEL XW series are ROBOTIS`first line of IP Level models, featuring a certified **IP68** rating and are designed for use in wet environments, underwater, and any outdoor applications where a sealed servo is necessary.

* XW series come with separate waterproof cable and extension cable.

1. 6 Operating Modes
Torque Control, Velocity Control, Position Control, Extended Position Control, Current based Position Control, PWM Control
2. Profile Control for Smooth Motion Planning
3. Improved Heat Sink Featuring an Aluminum Case
4. Hollow Back Case Minimizes Cable Stress (3-way-routing)
5. Direct Screw Assembly to the Case (without Nut Insert)
6. Energy Saving (Reduced Current from 100mA to 40mA)
7. 28.4% reduced volume compared to the MX-106
8. Support synchronous control mode

Package Component

XW540-T260-R	1
HN13-N105	1
Robot Cable-WP 1000mm	1
Robot Cable-WP 1000mm(Extention)	1
Wrench Bolt WB M2.5x5	16
Wrench Bolt WB M2.5x4	10
Wrench Bolt WB M3x10	1

Compatible Products

Controller : OpenCM9.04 485 Expansion Board, OpenCR1.0
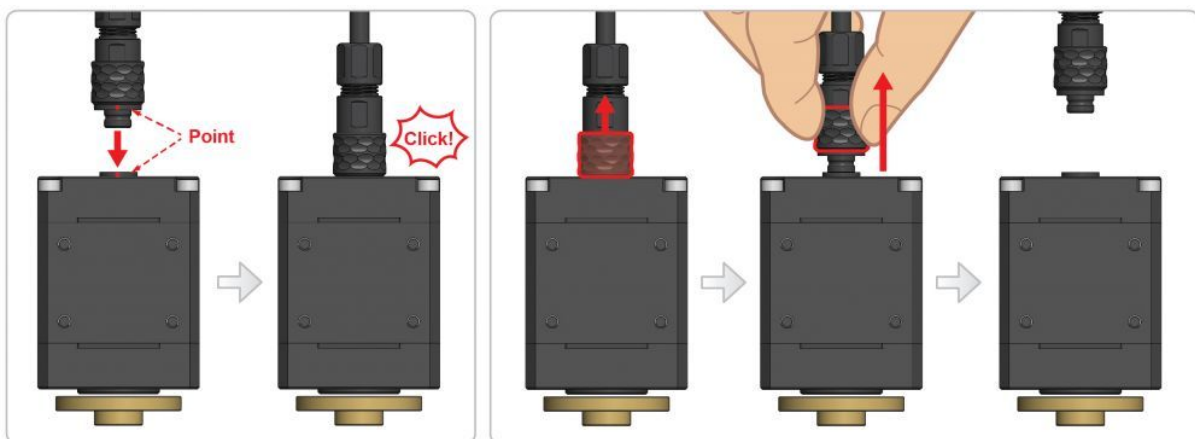Interface : USB2Dynamixel, U2D2

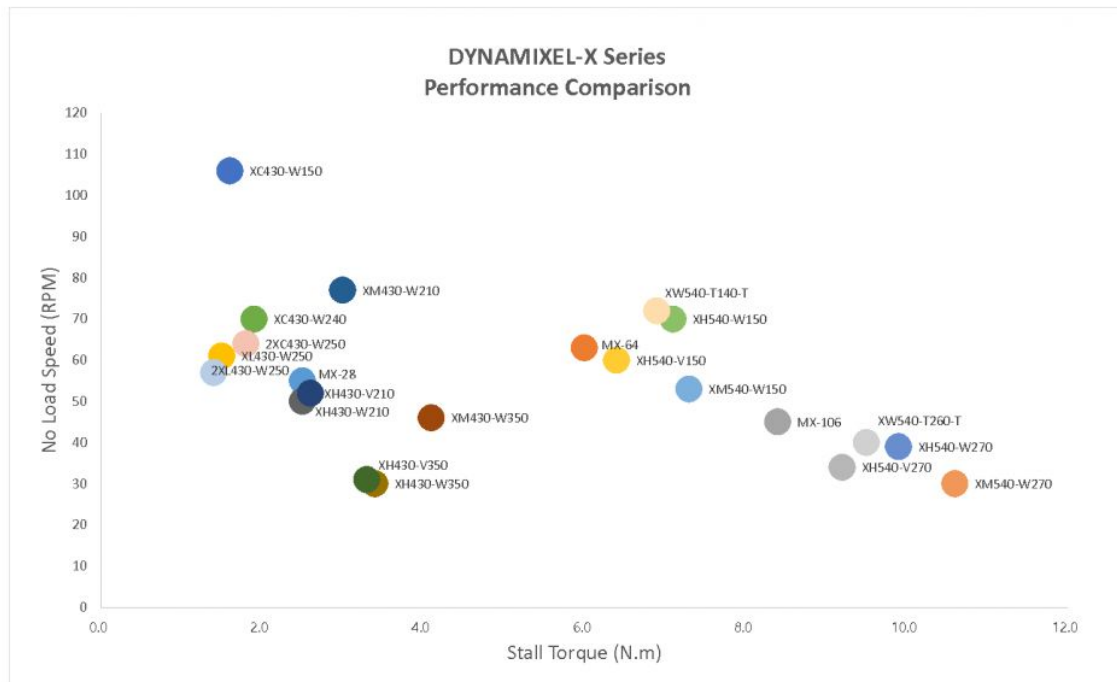## Factory Default Settings

ID : 1
Baud Rate : 57600bps
(User can change various settings including ID and baud rate according to environment)

Waterproof Cabling

Performance Comparison

DYNAMIXEL-X Series
Performance Comparison

Caution
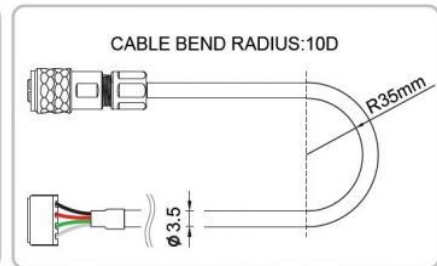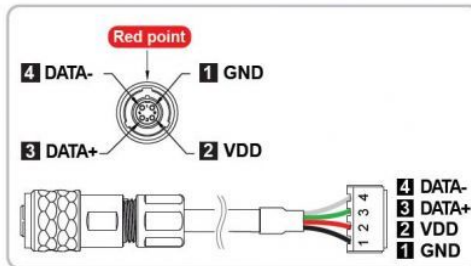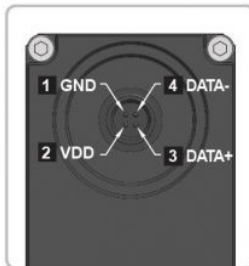
DYNAMIXEL XW series use a waterproof cable.
One side has a waterproof connector and the other side has a JST connector.
Extension cable has waterproof connectors for both sides.

The OpenCR controller has a JST connector for direct connection, but since the OpenCM9.04 + OpenCM 485 expansion board only has a Molex connector, a conversion cable must be used by utilizing U2D2 PHB.

Controller Model	Controller Connector	Cable	DynamixelX Connector	Dynamixel Communication
OpenCM+485 Expansion Board	Molex (3P, 4P)	Robot Cable-X3P 180mm (Convertible)	JST-3P	TTL

USB2Dynamixel	Molex (3P, 4P)	Robot Cable-X3P 180mm (Convertible)	JST-3P	TTL
OpenCR1.0	JST (3P, 4P)	Robot Cable-X3P (by length)	JST-3P	TTL
U2D2	JST (3P, 4P)	Robot Cable-X3P (by length)	JST-3P	TTL
OpenCM+485 Expansion Board	Molex (3P, 4P)	Robot Cable-X4P 180mm (Convertible)	JST-4P	RS-485
USB2Dynamixel	Molex (3P, 4P)	Robot Cable-X4P 180mm (Convertible)	JST-4P	RS-485
OpenCR1.0	JST (3P, 4P)	Robot Cable-X4P (by length)	JST-4P	RS-485
U2D2	JST (3P, 4P)	Robot Cable-X4P (by length)	JST-4P	RS-485

Specification

Model Name		XW540-T260-R
MCU		Cortex-M3 (72 [Mhz], 32 [bit])
Input Voltage	Min. [V]	10.0
	Recommended [V]	12.0
	Max. [V]	14.8
Performance Characteristics	Voltage [V]	12.0
	Stall Torque [N·m]	9.50
	Stall Current [A]	4.9
	No Load Speed [rpm]	40.0
	No Load Current [A]	0.07
Continuous Operation	Voltage [V]	-
	Torque [N·m]	-
	Speed [rpm]	-
	Current [A]	-
Resolution	Resolution [deg/pulse]	0.0879
	Step [pulse]	4,096
	Angle [degree]	360
Position Sensor		Contactless absolute encoder (12 [bit], 360 [deg]) Maker : ams(www.ams.com), Part No : AS5045
Operating Temperature	Min. [°C]	-5
	Max. [°C]	80
Motor		Coreless (Maxon)
Baud Rate	Min. [bps]	9,600
	Max. [bps]	4,500,000
Control Algorithm		PID

Gear Type	Spur
Gear Material	Metal
Case Material	Metal(Front, Middle) Engineering Plastic(Back)
Dimensions (W x H x D) [mm]	33.5 X 58.5 X 46
Dimensions (W x H x D) [inch]	1.32 X 2.30 X 1.75
Weight [g]	185.00
Weight [oz]	5.82
Gear Ratio	260.6:1
Command Signal	Digital Packet
Protocol Type	Half duplex Asynchronous Serial Communication (8bit, 3stop, No Parity)
Link (Physical)	RS485 Multi Drop Bus
ID	0 ~ 252
Feedback	Position, Velocity, Current, Realtime tick, Trajectory, Temperature, Voltage, External Port, etc.
Protocol version	1.0 2.0(Default)
Operating Mode / Angle	Current Control mode : Endless turn Velocity Control mode : Endless turn Position Control Mode : 360 [deg] Extended Position Control Mode : ±256 [rev] Current-based Position Control Mode : ±256 [rev] PWM Control Mode : Endless turn
Output [W]	-

| Standby Current [mA] | 40 |