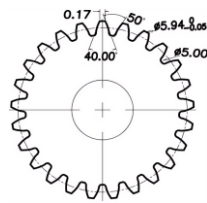
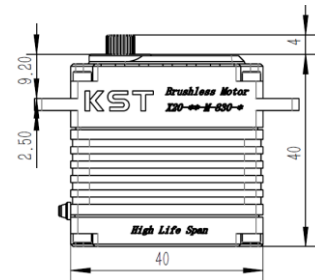
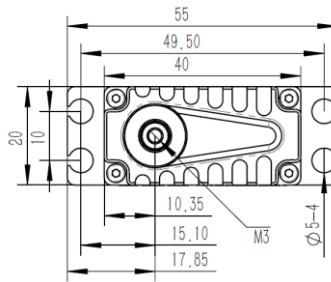


X20-xx-M-830-x Technical Specification



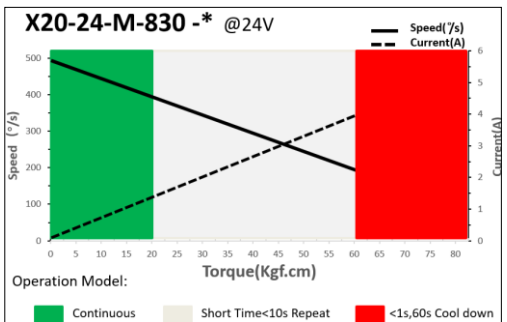
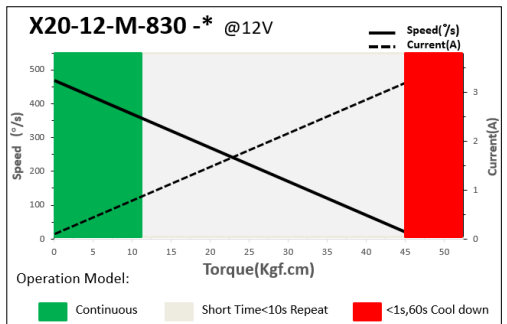
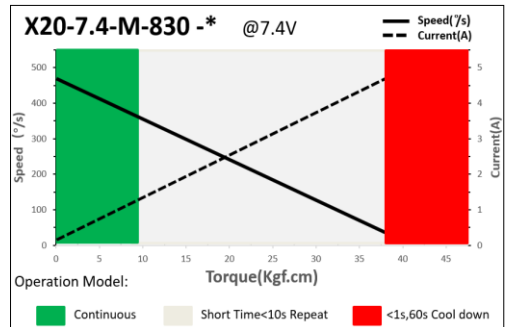
25T 6mm Output Shaft Spline



1. Operating Data

	X20-7.4-M-830-x	X20-12-M-830-x	X20-24-M-830-x
Rated Voltage	DC7.4V	DC12.0V	DC24.0V
Voltage Range	DC6.0V-8.4V	DC9.0V-13V	DC20.0V-28.0V
Stalling Torque	38Kgf.cm@7.4V	45Kgf.cm@12V	60Kgf.cm@24V
Rated Torque	9.0Kgf.cm@7.4V	11Kgf.cm@12V	20Kgf.cm@24V
Stalling Current	4.95A	3.25A	5.25A
Rated Current	1.25A	0.85A	1.25A
No-load Speed	0.13sec/60°@7.4V	0.13sec/60°@12V	0.12sec/60°@24V
Rated Speed	0.22sec/60°@7.4V	0.23sec/60°@12V	0.20sec/60°@24V
Working Frequency	1520us/333Hz		
Default Travel Angle	± 100°=200°Total When 500us-2500us		
Temperature Range	-20°C.....+65°C		
Case Material	Aluminum Alloy		
Motor Type	Brushless DC Motor		High Power Brushless Motor
Gear Set Material	Hardened Steel		
Position Sensor	Contactless		
Ball Bearing	6 BB		
Case Dimensions	40mm*20mm*40mm±0.2mm		
Weight	80g±10%		

2. Performance



3. Command signal

3.1. PWM Command Interface

Signal Voltage	TTL-level: HIGH: min.3.3V, max.5.0V Low: min.0.0V, max.1.5V
Pulse Lengths	500us-2500us
Pulse Lengths for Position-100°/ 0°/+100°	500us/1500us/2500us

3.2. RS485 Command Interface

Baud-Rate	115200 \pm 1.5% bits/s
Protocol (Documentation available)	10 Byte (incl. 1 byte Check Sum)

3.2.1. RS485 Protocol Specifications

Number of Data Bits	8
Number of Stop Bits	1
Parity	None

3.2.2. Command / Response Frame

Byte #	Description	Byte #	Description
1	Frame Head(0xFE)	6	Data
2	Version(0xCA)	7	Data
3	Address	8	Data
4	Command code	9	Check Sum
5	Data	10	(0A) Frame End

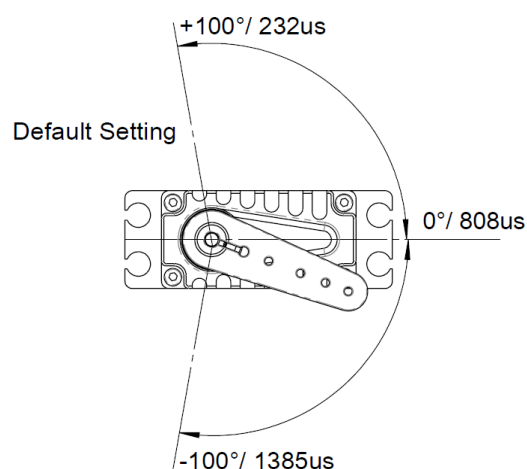
3.3. CAN Bus Command Interface

Baud-Rate	500Kbps
Node number	0 x25 (range 1 ~ 127, 0 is radio)
Communication	3.1: CAN Open standard frame format 3.2: CANOPEN Extended frame

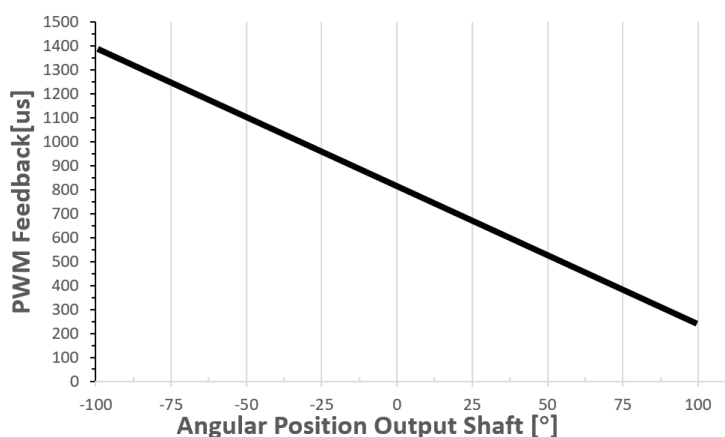
3.4. Feedback Signal

3.4.1. Position Feedback Signal (PWM Versions)

The Position Feedback signal is an output signal with a square wave which is directly related to the output shaft's angular position. Reference is Supply Ground.



Position Feedback



* Tolerance \pm 1%

