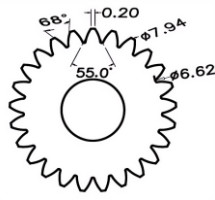
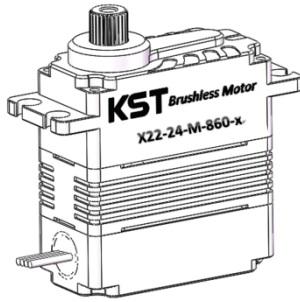
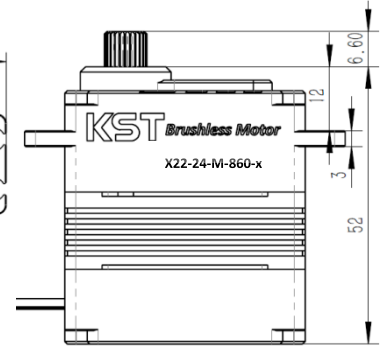
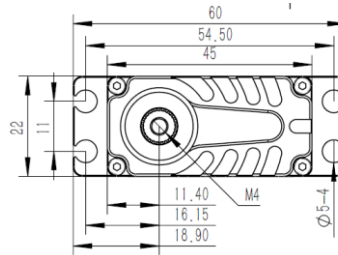


X22-24-M-860-x Technical Specification



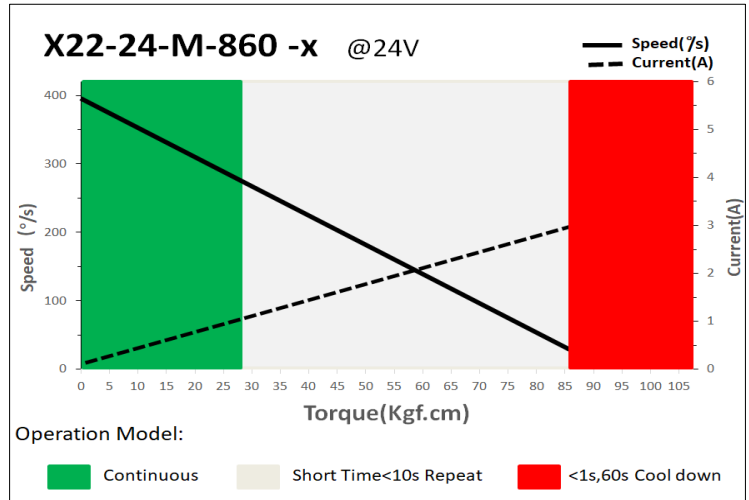
25T- 8mm Output Shaft Spline



1. Operating Data

Rated Voltage	DC24V
Voltage Range	DC22.0V-28.0V
Stalling Torque	86kgf.cm@24.0V
Rated Torque	28kgf.cm@24.0V
Stalling Current	4.80A
Rated Current	1.08A
No-load Speed	0.15sec/60°@24V
Rated Speed	0.20sec/60°@24V
Working Frequency	1520us/333Hz
Default Travel Angle	± 100°=200°Total
Temperature Range	-10°C.....+65°C
Case Material	Aluminum Alloy
Motor Type	Brushless DC Motor
Gear Set Material	Hardened Steel
Position Sensor	Contactless
Ball Bearing	6BB
Waterproof level	IP67
Case Dimensions	45*22*52 mm(±0.2mm)
Weight	128g(±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 ±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

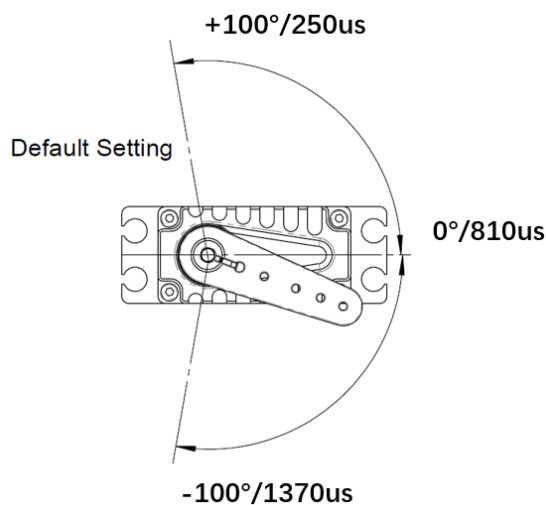
3.3. CAN Bus Command Interface

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

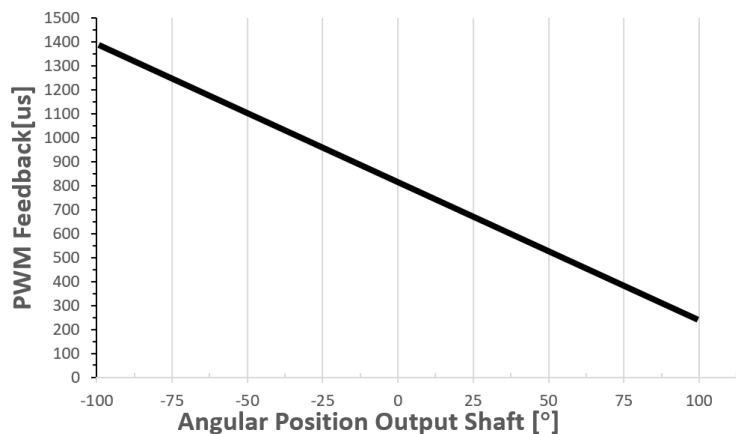
3.4. Feedback Singnal

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



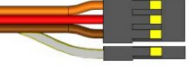
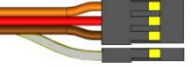
* Tolerance $\pm 1\%$

3.4.2 Feedback Value (Bus Versions)

Integrated in the Bus protocol a Feedback Value, including the Angle position, Temperature, current value. Value read by sending request command. Provide the details of the bus in the document.

4. Electrical Connection Options

Pin Assignment (PWM)				
	1	Yellow	SIG	Command Signal
	2	Red	DC+	Supply Voltage
	3	Brown	DC-(GND)	Supply Ground, Signal Ground

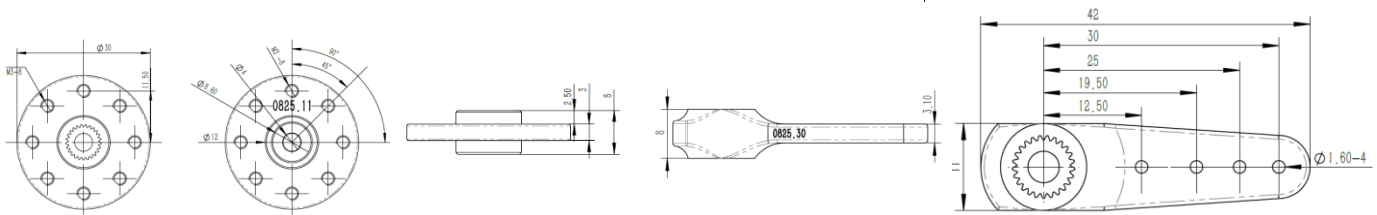
	4	White(Options)	Feedback	Position Feedback (Default Values PWM signal)
	Pin Assignment (RS485)			
	1	Yellow	RS485A	Non-Inverted Input / Output line
	2	Red	DC+	Supply Voltage
	3	Brown	DC-(GND)	Supply Ground, Signal Ground
	4	white	RS485B	Inverted Input / Output line
	Pin Assignment (CAN_BUS)			
	1	Yellow	CAN_H	CAN high
	2	Red	DC+	Supply Voltage
	3	Brown	DC-(GND)	Supply Ground, Signal Ground
	4	white	CAN_L	CAN low

5. Accessories (Options)

Item	Item-No.
Aluminum Servo Disc	0825.11
Aluminum Servo Arm (Single side)	0825.30

#Item No.: 0825.11

#Item No.: 0825.30



6. Item Number System

X	22	-	24	-	M	-	860	-	*
Servo Class									Command
22mm Class									1: PWM
									2: RS485
Supply Voltage							Servo Type		3.1: CAN Open Standard Frame
24: DC24V							860		3.2: CAN Open Extended Frame
					Sensor				
					M: Contactless				