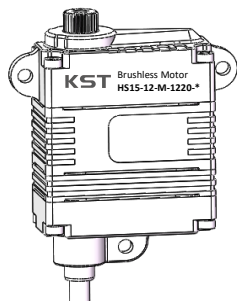
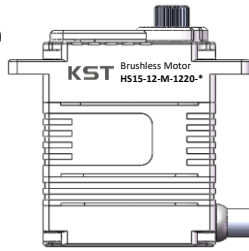


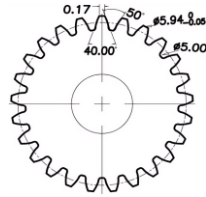
HS15-12-M-1220-x Technical Specification



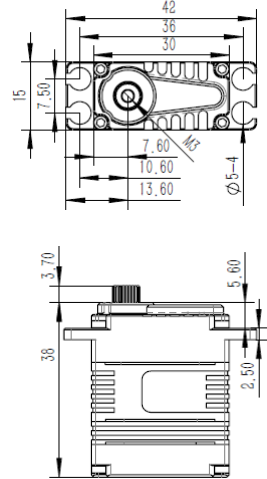
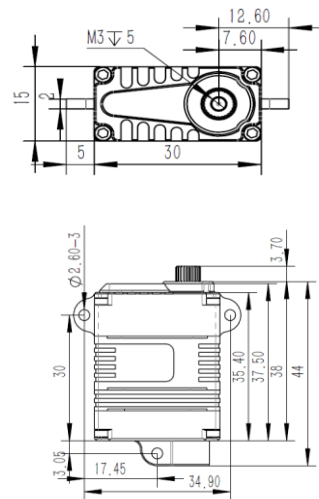
Version A



Version B



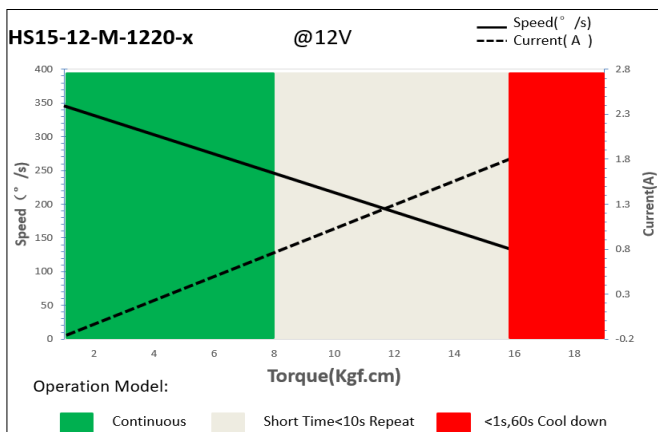
25T 6mm
Output Shaft Spline



1. Servo Data

Rated Voltage	DC12V
Voltage Range	DC9V-13V
Stalling Torque	16Kgf.cm@12V
Rated Torque	8Kgf.cm@12V
Stalling Current	2.05A
Rated Current	0.75A
No-load Speed	350°/s @25°C
Rated Speed	260°/s @25°C
Default Travel Angle	±100° = 200° total travel
Operating Temperature Range	-30°C+65°C
Case Material	Aluminum Alloy 7075
Motor Type	Brushless DC Motor
Gear Set Material	Hardened Steel
Position Sensor	Contactless
Ball Bearing	6BB
Case Dimensions	30mm*15mm*38mm(±0.2mm)
Weight	40g (±10%)

2. Performance



3. Command Signal

3.1 PWM Command Interface

Signal Voltage	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 / RS422 Command Interface

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

3.2.1 RS485 / RS422 Protocol Specifications

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

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

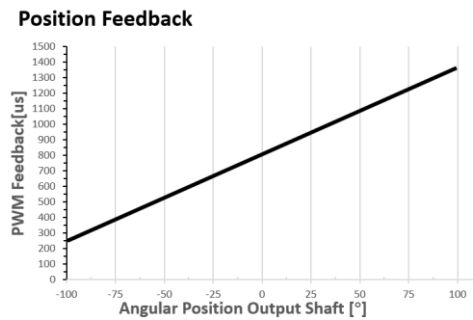
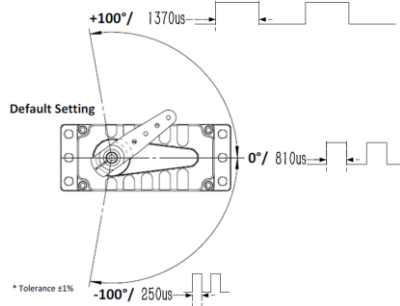
3.3 CAN Bus Command Interface

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

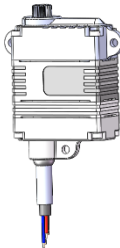


3.4.2 Feedback Value (Bus Version)

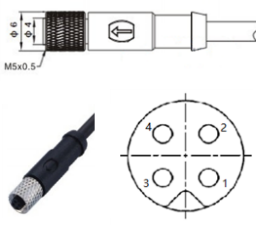
Integrated in the Bus protocol a Feedback Value, including the Angle position, Temperature, current value. Value read by sending request command. Provide the details of the bus in the document.

4. Electrical Connection Options

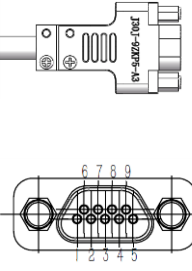
4.1. Shielded Cable, Open leads. (KFVP 4*0.14 AFR250, Cable diameter ≤ ϕ 3.5mm)

	Pin Assignment(PWM)			Pin Assignment (RS485)			Pin Assignment (CAN_BUS)		
	1	Red	DC+	1	Red	DC+	1	Red	DC+
	2	Black	DC-	2	Black	DC-	2	Black	DC-
	3	White	SIG	3	White	RS 485 B	3	White	CAN_L
	4	Blue	NC	4	Blue	RS 485 A	4	Blue	CAN_H

4.2. Industrial Standard M5 electrical Connector

	Pin Assignment (RS485)			Pin Assignment (CAN_BUS)		
	1	DC+	Supply Voltage	1	DC+	Supply Voltage
	2	RS 485 B	Inverted Input / Output line	2	CAN_L	CAN low
	3	DC-	Supply Ground, Signal Ground	3	DC-	Supply Ground, Signal Ground
	4	RS 485 A	Non-Inverted Input / Output line	4	CAN_H	CAN High

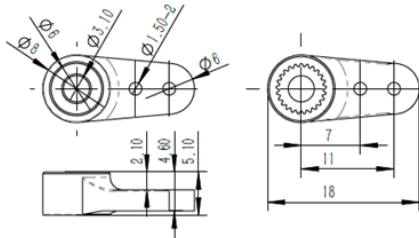
4.3. Industrial Standard J30J-9ZKP (External) electrical Connector

	Assignment PWM		Assignment RS485		Assignment CAN		Assignment RS422	
	1	DC +	1	DC +	1	DC +	1	DC +
	2	Supply Voltage	2	Supply Voltage	2	Supply Voltage	2	Supply Voltage
	3	NC Do not connect	3	NC Do not connect	3	NC Do not connect	3	NC Do not connect
	4	DC-	4	DC-	4	DC-	4	DC-
	5	Supply Ground	5	Supply Ground	5	Supply Ground	5	Supply Ground
	6	PWM Command Signal	6	RS485A	6	CAN_H	6	RX+
	7	Feedback Signal	7	RS485A	7	CAN_H	7	RX-
	8	Signal GND	8	RS485B	8	CAN_L	8	TX+
	9	Signal GND	9	RS485B	9	CAN_L	9	TX-

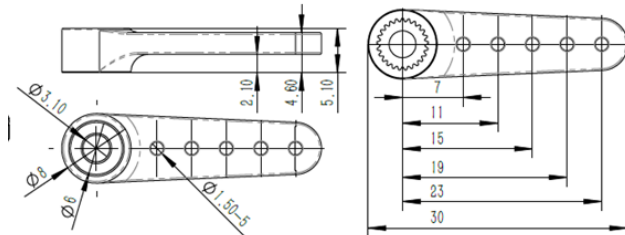
5. Accessories List

Model	Output Shaft Spline	Item	Item No.
HS15-12-M-1220-X	25T 6mm	Aluminum Servo Arm (Single side)	0625.11
		Aluminum Servo Arm (Single side)	0625.23
		Aluminum Servo Arm (Single side)	0625.40
		Aluminum Servo Arm (Double side)	0625.60

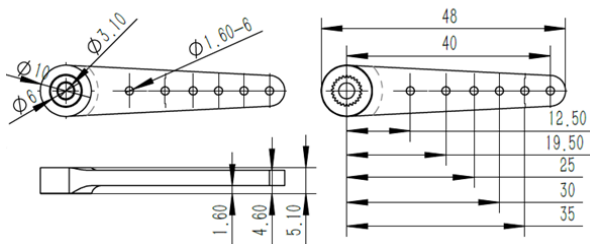
Item No.: 0625.11



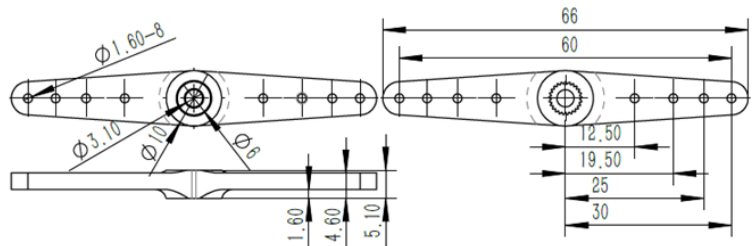
Item No.: 0625.23



Item No.: 0625.40



Item No.: 0625.60



6. Item Number System

