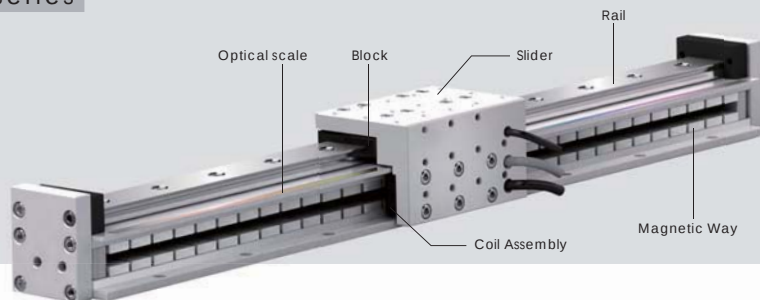


CLS-series

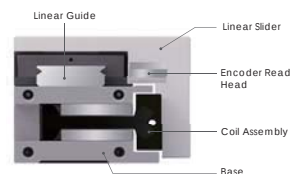


Compared to traditional ball screw modules, the drive coupled CLS series provides superior precision and velocity under many thrust output conditions. The highly integrated model design also enables a much increased productivity and reliability as compared to the accuracy and speed limitations of traditional ball screw systems.

Features

1 High rigidity · Compact Structure

CLS integrates the base with the stator to utilize a wide-type linear guide to move its aluminum slider, sporting also an additional optical scale for enhanced position feedback. The module achieves both a high degree of compactness and rigidity, providing our customers with an optimal choice to satisfy their varying thrust requirements.



2 Lightweight · High velocity and Acceleration

The linear motor used in this product is of the ironless type, which combined with its aluminum slider, enables a lightening of motion loads. This enables a high velocity, acceleration and deceleration rate.



3 Smooth motion

The unique no clogging force feature of the ironless linear motor enables it to achieve a high stability and low velocity ripple motion, even under very slow motions.

4 Multiple slider on same axis

CLS can contain multiple sliders on the same axis, each individually controllable.



5 Customization

CLS modules can be customized for specific customer applications. Options include: Mounting hole positions, cable outlet types, linear guide models, weight reduction and specific travel range customization.

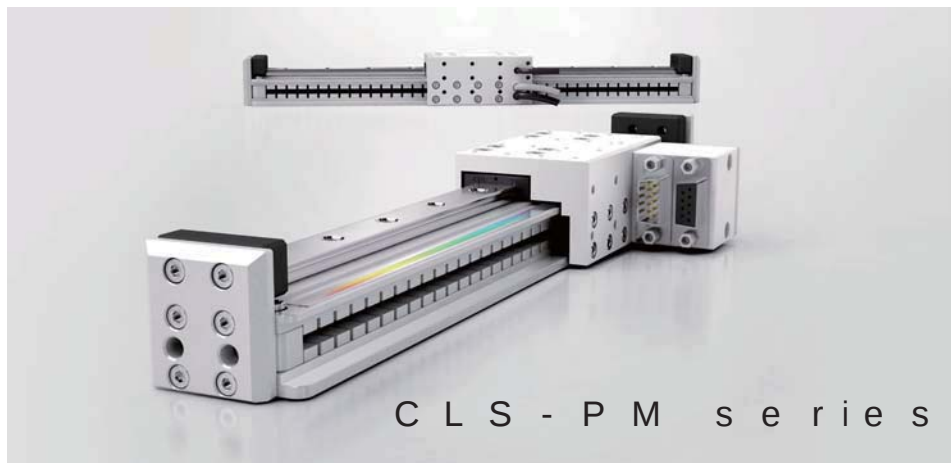


Accuracy

Model	Total length(mm)	Repeatability(μm)*1,2	Straightness(μm)*2
		Optical scale	
CLS-PM-4/6	152	2	6
	332		8
	512		10
CLS-PA-X2/4	220	2	6
	340		8
	520		10
	820		20
	1000		20
	1480		25
CLS-PB-X2/4/6	230	2	6
	530		10
	830		20
	1010		20
	1250		25
	1490		30

*1. This is the standard value of the aluminum base when fixed upon a 0.01/300mm platform. We can reach higher specifications by changing the method and material based on the customer's actual requirements.

*2. This value is achieved from the 1 μm encoder head. System accuracy can be increased further according to customer requirements to 0.5m, 0.2, and 0.1 μm resolutions.

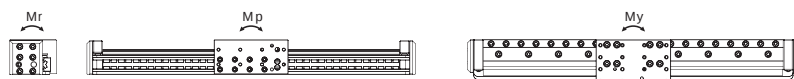


CLS - P M series

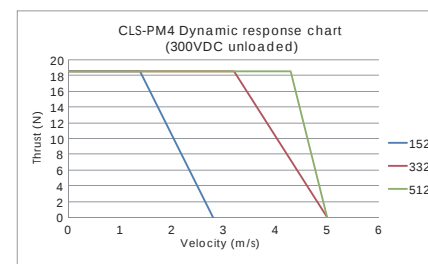
CLS-PM Module Parameters

CLS		PM-4			PM-6		
Motor parameters							
Continuous force (N)		18.5			25.5		
Peak force (N)		74			102.5		
Continuous current (A _{peak})		5			4.6		
Peak current (A _{peak})		20			18.4		
Force constant (N/A _{peak})		3.7			5.5		
Back EMF constant (VL-L/m/s)		4.3			6.5		
Resistance (Ohms)		1.2			1.7		
Inductance (mH)		0.04			0.07		
Magnetic pole pitch (mm)		15			15		
Stage parameters							
Total length (mm)		152	332	512	152	332	512
Effective travel (mm)		45	225	405	15	195	375
Slider mass (kg) ⁽¹⁾		0.25			0.35		
Module weight(kg) ⁽¹⁾		0.7	1.4	2.1	0.9	1.5	2.2
Linear Guide Rated Load and Static Moment							
Model code		MR7WN			MR7WL		
Block quantity		2			2		
Load capacity (KN)	C (dyn)	2.4			3.1		
	Co (stat)	4.2			6.3		
Static moment (Nm)	Mro(Nm)	30			45.3		
	Mpo(Nm)	40.7			97.2		
	Myo(Nm)	40.7			97.2		

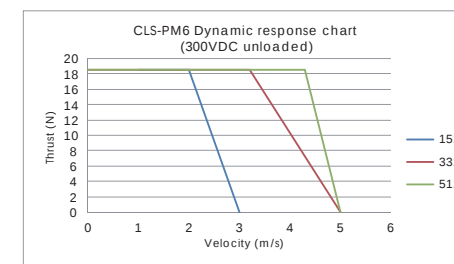
(1) Moving Load refers to mass before the addition of the payload mass. This includes the slider platform, motor forcer, linear guide, cabling, optical encoder read head and so forth. For the Connector type termination option, this adds 0.12 kg to the product weight.



Dynamic Characteristics

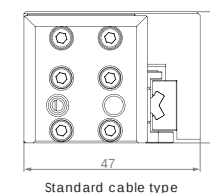


The chart is made with maximum velocity set to 5m/s. For higher velocities or special requirements, please contact **cpc**

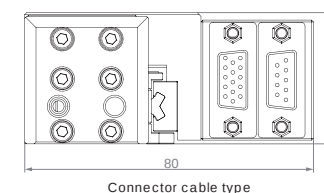


The chart is made with maximum velocity set to 5m/s. For higher velocities or special requirements, please contact **cpc**

Assembly Dimensions



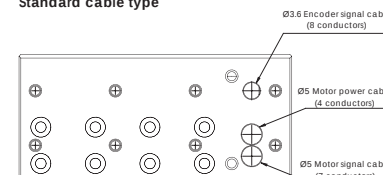
Standard cable type



Connector cable type

Wiring Definition

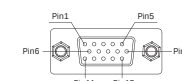
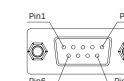
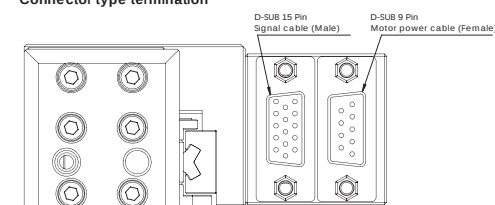
Standard cable type



OUTPUT CABLE

Motor Wire Table		Hall Sensor Wire Table and Thermal Protection Wire Table				Encoder Signal connections	
Color	Function	Color	Function	Color	Function	Color	Function
White	phase U	Pink	Hall A U phase	Brown	Thermal sensor	Black	GND
Yellow	phase V	Yellow	Hall B V phase	Blue		Brown	Index-
Brown	phase W	Green	Hall C W phase			Blue	B+
Green	PE	Grey	Hall IC + 5V			Red	5V
		White	GND			Orange	Index+
						Purple	8+
						Green	A+

Connector type termination

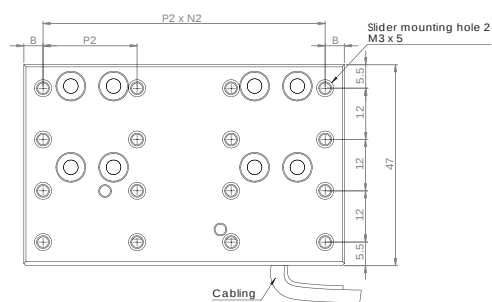
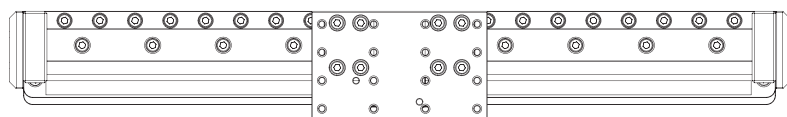
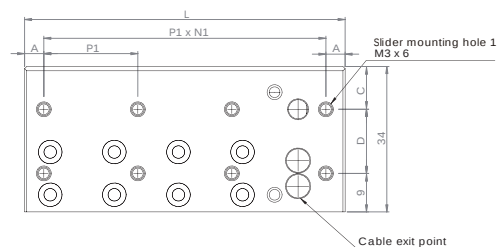
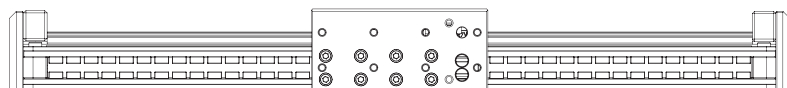


Pin No.	Function
1	U
2	
6	
3	V
4	
7	
8	W
4	
5	
9	Hall A U phase
10	Hall B V phase
Frame	Isolation & GND

Pin No.	Function
1	GND
12	Hall C W phase
3	Index-
13	Hall IC + 5V
4	B+
14	Hall GND
5	Thermal sensor
6	5V
Index+	
7	Frame
8	Isolation
A+	
9	Hall A U phase
10	Hall B V phase

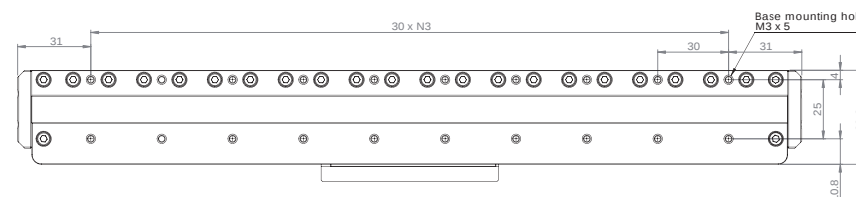
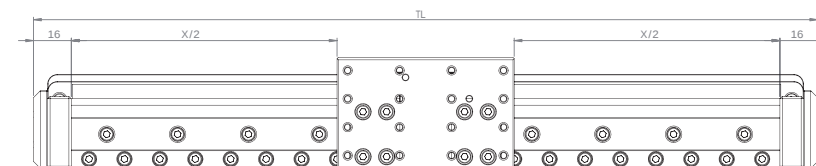
Pin No.	Function
11	Hall C W phase
12	Hall IC + 5V
13	Hall GND
14	Thermal sensor
15	5V
Frame	Isolation
A+	
9	Hall A U phase
10	Hall B V phase

Slider Dimension



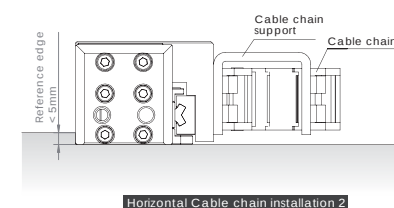
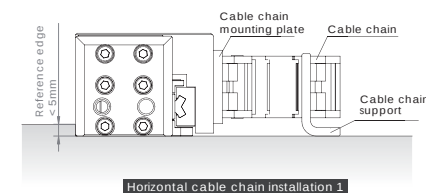
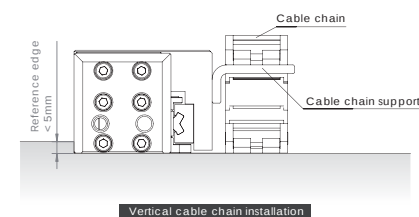
Unit: mm									
Motor Model	Slider Length (L)	A	P1	N1	B	P2	N2	C	D
PM4	75	4.5	22	3	4.5	22	3	10	15
PM6	105	7.5	30	3	7.5	30	3	8	17

Mounting Dimension



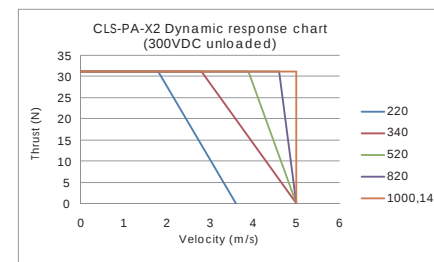
Unit: mm			
Motor Model	Total Length (TL)	Effective Travel (X)	N3
PM4	152	45	3
	332	225	9
	512	405	15
PM6	152	15	3
	332	195	9
	512	375	15

Usage Suggestion

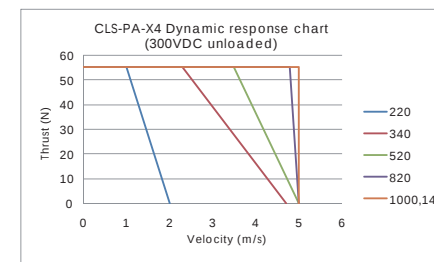




Dynamic Characteristics



The chart is made with maximum velocity set to 5m/s. For higher velocity or special requirements, please contact **cpc**



The chart is made with maximum velocity set to 5m/s. For higher velocity or special requirements, please contact **cpc**

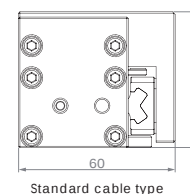
CLS-PAX Module Parameters

CLS		PA-X2						PA-X4					
Motor parameters													
Continuous force (N)		31						55					
Peak force (N)		123.8						220.2					
Continuous current (Apeak)		3.6						3.2					
Peak current (Apeak)		14.4						12.8					
Force constant (N/Apeak)		8.6						17.2					
Back EMF constant (VL-L/m/s)		10						20					
Resistance (Ohms)		4.3						8.5					
Inductance (mH)		0.83						1.65					
Magnetic pole pitch (mm)		30						30					
Stage parameters													
Total length (mm)		220	340	520	820	1000	1480	220	340	520	820	1000	1480
Effective travel (mm)		90	210	390	690	870	1350	30	150	330	630	810	1290
Slider mass (kg) ⁽¹⁾		0.5						0.8					
Module weight(kg) ⁽¹⁾		2.1	2.9	3.9	5.7	7.5	16.2	2.4	3.2	4.2	6	7.8	16.5
Linear Guide Rated Load and Static Moment													
Model code		MR12WN						MR12WL					
Block quantity		2						2					
Load capacity (KN)	C (dyn)	6.1						8.1					
	Co (stat)	10.4						15.6					
Static moment (Nm)	Mro(Nm)	127						191					
	Mpo(Nm)	124						341					
	Myo(Nm)	124						341					

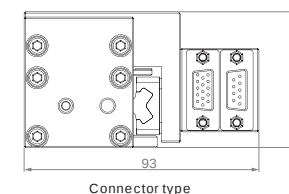
(1) Moving Load refers to mass before addition of payload mass. This includes the slider platform, motor forcer, linear guide, cabling, optical encoder read head etc. For the Connector type termination option, this adds a further 0.12 kg to the product weight.



Assembly Dimensions



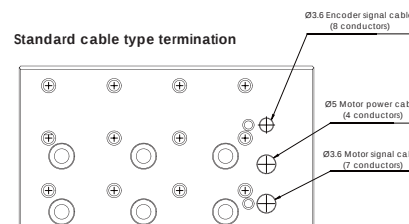
Standard cable type



Connector type

Wiring Definition

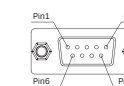
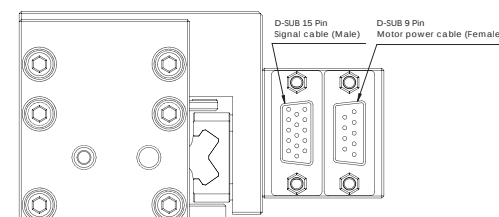
Standard cable type termination



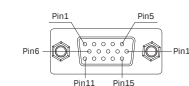
OUTPUT CABLE

Motor Wire Table		Hall Sensor Wire Table and Thermal Protection Wire Table				Encoder Signal connections	
Color	Function	Color	Function	Color	Function	Color	Function
White	phase U	Pink	Hall A U phase	Brown	Thermal sensor	Black	GND
Yellow	phase V	Yellow	Hall B V phase	Blue		Brown	Index-
Brown	phase W	Green	Hall C W phase			Blue	B-
Green	PE	Grey	Hall IC + 5V			Yellow	A-
		White	GND			Red	5V
						Orange	Index+
						Purple	B+
						Green	A+

Connector type termination

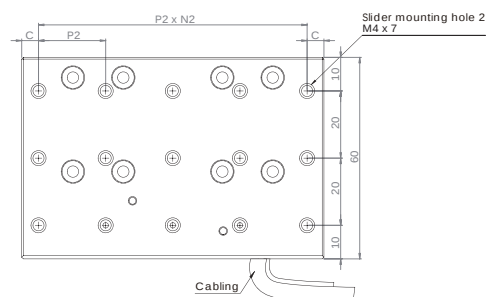
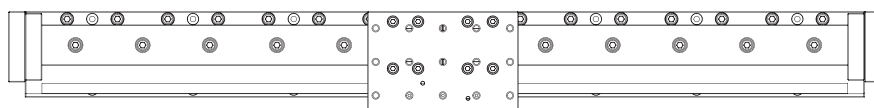
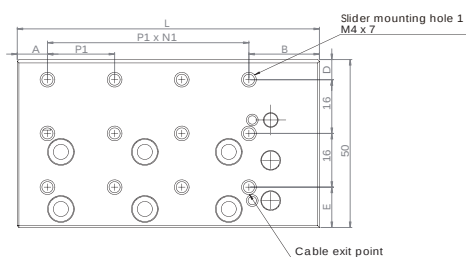
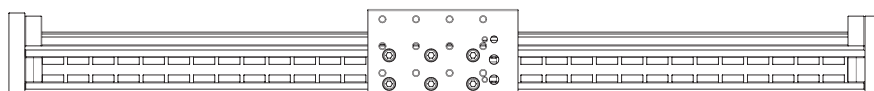


Pin No.	Function
1	U
2	
6	
3	V
4	
5	
7	W
8	
9	
10	Frame Isolation & GND



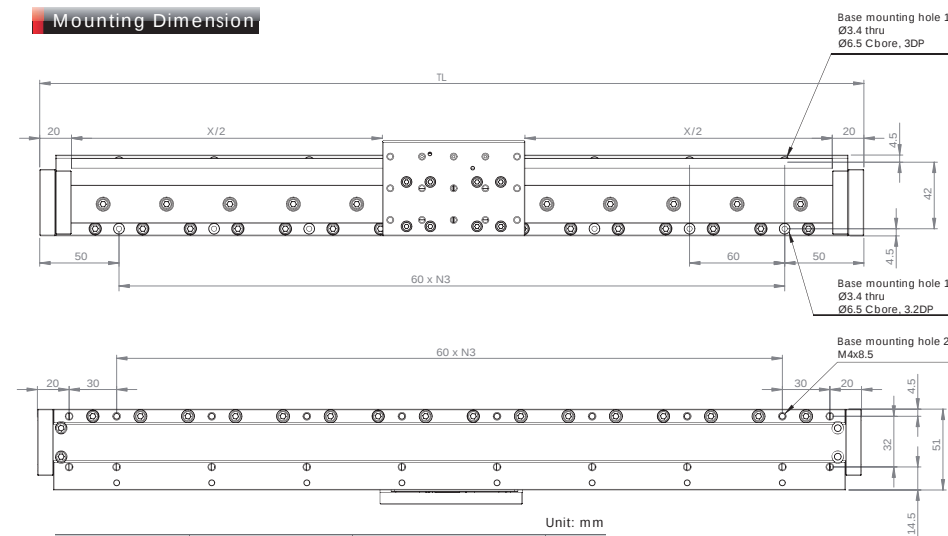
Pin No.	Function
1	GND
2	Index-
3	B-
4	A-
5	5V
6	Index+
7	B+
8	A+
9	Hall A U phase
10	Hall B V phase

Slider Dimension



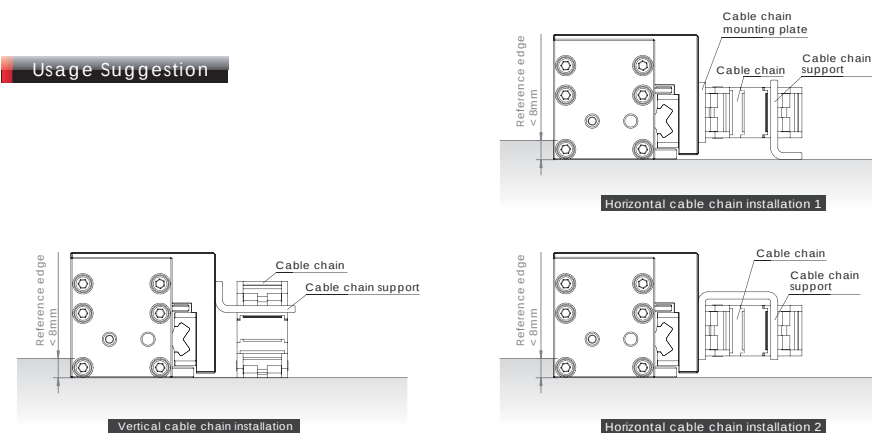
Unit: mm										
Motor Model	Slider Length (L)	A	B	P1	N1	C	P2	N2	D	E
PA-X2	90	9	21	20	3	5	20	4	6	12
PA-X4	150	9	21	35	3	5	35	4	6	12

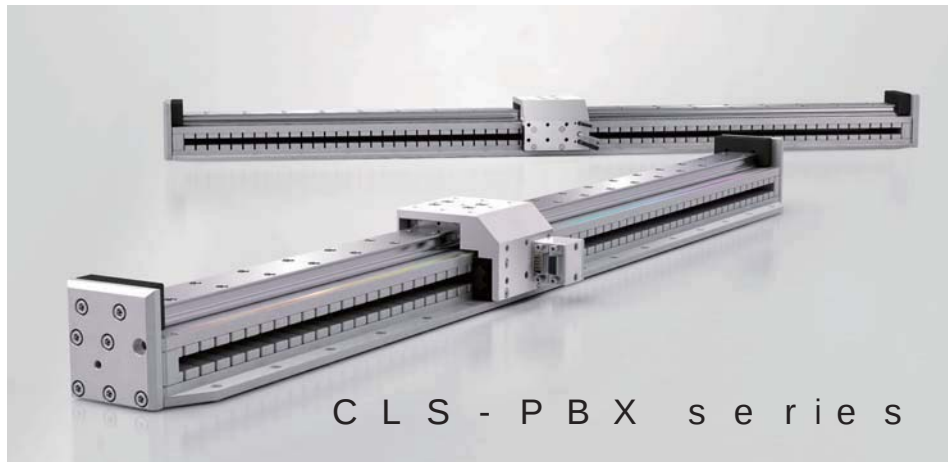
Mounting Dimension



Unit: mm			
Motor Model	Total Length (TL)	Effective Travel (X)	N3
PA-X2	220	90	2
	340	210	4
	520	390	7
	820	690	12
	1000	870	15
PA-X4	1480	1350	23
	220	30	2
	340	150	4
	520	330	7
	820	630	12
	1000	810	15
	1480	1290	23

Usage Suggestion



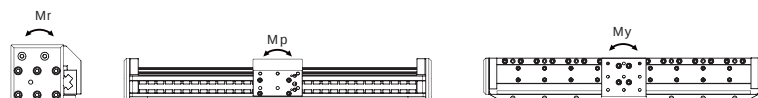


CLS - PBX series

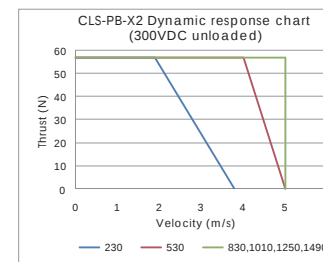
CLS-PBX Module Parameters

CLS			PB-X2						PB-X4						PB-X6					
Motor parameters																				
Continuous force (N)			56.8						107.8						153.3					
Peak force (N)			227						431.4						613					
Continuous current (Apeak)			4						3.8						3.6					
Peak current (Apeak)			16						15.2						14.4					
Force constant (N/Apeak)			14.2						28.4						42.6					
Back EMF constant (VL-L/m/s)			16.5						33						49.5					
Resistance (Ohms)			4.1						8.3						12.4					
Inductance (mH)			1.44						2.87						4.31					
Magnetic pole pitch (mm)			30						30						30					
Stage parameters																				
Total length (mm)			230	530	830	1010	1250	1490	230	530	830	1010	1250	1490	530	830	1010	1250	1490	
Effective travel (mm)			95	395	695	875	1115	1355	35	335	635	815	1055	1295	275	575	755	995	1235	
Slider mass (kg) ⁽¹⁾			0.7						1						1.3					
Module weight(kg) ⁽¹⁾			3.7	8.5	13.3	16.2	20	23.9	4	8.8	13.6	16.5	20.3	24.2	9.4	14.2	17.1	20.9	24.8	
Linear Guide Rated Load and Static Moment																				
Model code			WRC21/15MN						WRC21/15MN						WRC21/15MN					
Block quantity			1						2						2					
Load capacity (kN)	C (dyn)		9.9						19.8						19.8					
	Co (stat)		17.5						35.5						35.5					
Static moment (Nm)	Mro(Nm)		315						630						630					
	Mpo(Nm)		105						670						1078					
	Myo(Nm)		105						670						1078					

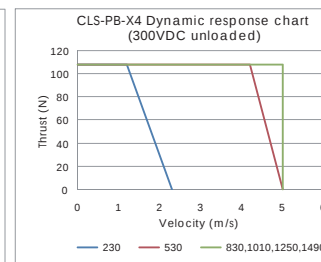
(1) Moving Load refers to mass before addition of payload mass. This includes the slider platform, motor forcer, linear guide, cabling, optical encoder read head etc. For the Connector type termination option, this adds 0.12 kg to the product weight.



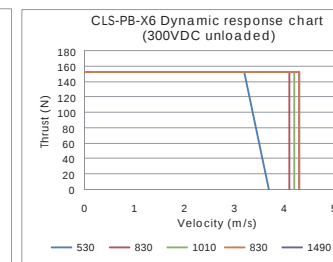
Dynamic Characteristics



The chart is made with maximum velocity set to 5m/s. For higher velocity or special requirements, contact **cpc**

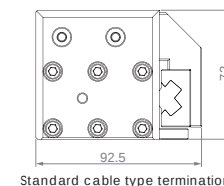


The chart is made with maximum velocity set to 5m/s. For higher velocity or special requirements, contact **cpc**

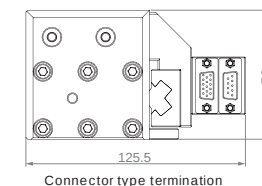


The chart is made with maximum velocity set to 5m/s. For higher velocity or special requirements, contact **cpc**

Assembly Dimensions



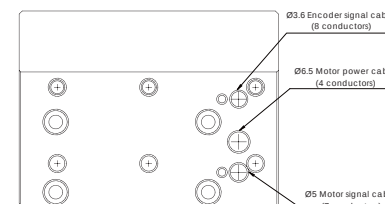
Standard cable type termination



Connector type termination

Wiring Definition

Standard cable type

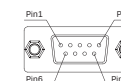
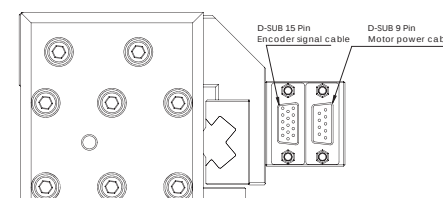


OUTPUT CABLE

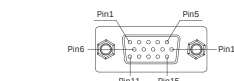
Motor Wire Table		Hall Sensor Wire Table and Thermal Protection Wire Table			
Color	Function	Color	Function	Color	Function
White	phase U	Pink	Hall A U phase	Brown	Thermal sensor
Yellow	phase V	Yellow	Hall B V phase	Blue	
Brown	phase W	Green	Hall C W phase		
Green	PE	Grey	Hall IC + 5V		
		White	GND		

Encoder Signal connections	
Color	Function
Black	GND
Brown	Index-
Blue	B-
Yellow	A-
Red	SV
Orange	Index+
Purple	B+
Green	A+

Connector type

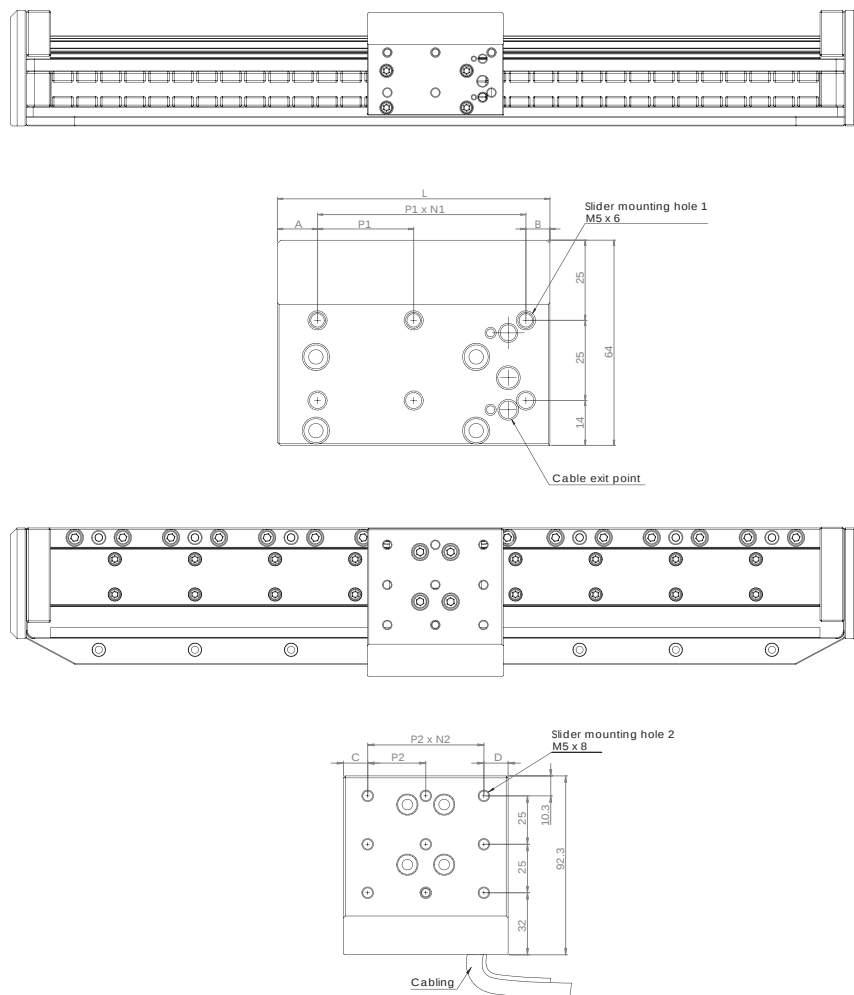


Power cable pin out	
Pin No.	Function
1	
2	U
6	
3	
7	V
8	
4	
5	W
Frame	Isolation & GND



Signal cable pin out	
Pin No.	Function
1	GND
2	Index-
3	B-
4	A-
5	SV
6	Index+
7	B+
8	A+
9	Hall A U phase
10	Hall B V phase

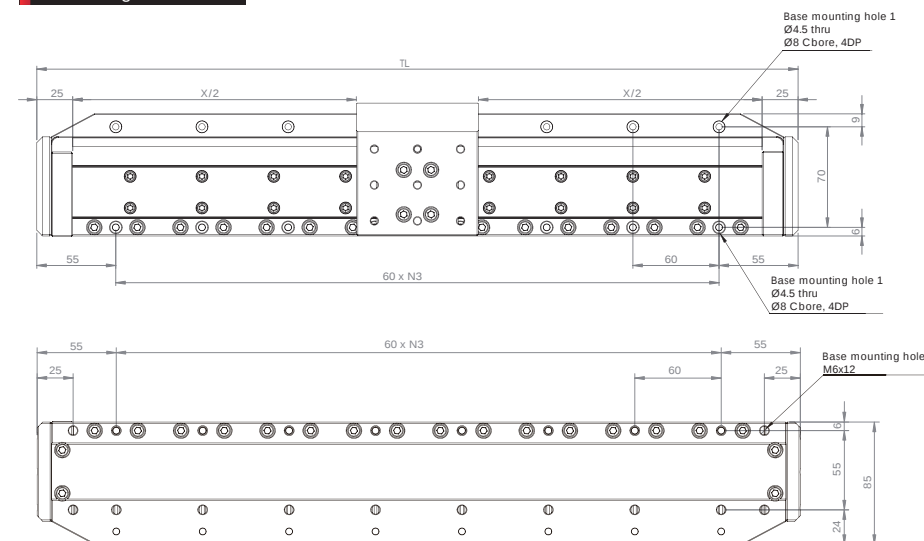
Slider Dimension



Motor Model	Slider Length (L)	A	B	P1	N1	C	D	P2	N2
PB-X2	85	7.5	7.5	35	2	12.5	12.5	30	3
PB-X4	145	5	5	45	3	12.5	12.5	40	3
PB-X6	205	13	32	40	4	13	32	40	4

Unit: mm

Mounting Dimension



Motor Model	Total Length (TL)	Effective Travel (X)	N3
PB-X2	230	95	2
	530	395	7
	830	695	12
	1010	875	15
	1250	1115	19
PB-X4	1490	1355	23
	230	35	3
	530	335	7
	830	635	12
	1010	815	15
PB-X6	1250	1055	19
	1490	1295	23

Unit: mm

Motor Model	Total Length (TL)	Effective Travel (X)	N3
PB-X6	530	275	7
	830	575	12
	1010	755	15
	1250	995	19
	1490	1235	23

Unit: mm

Usage Suggestion

