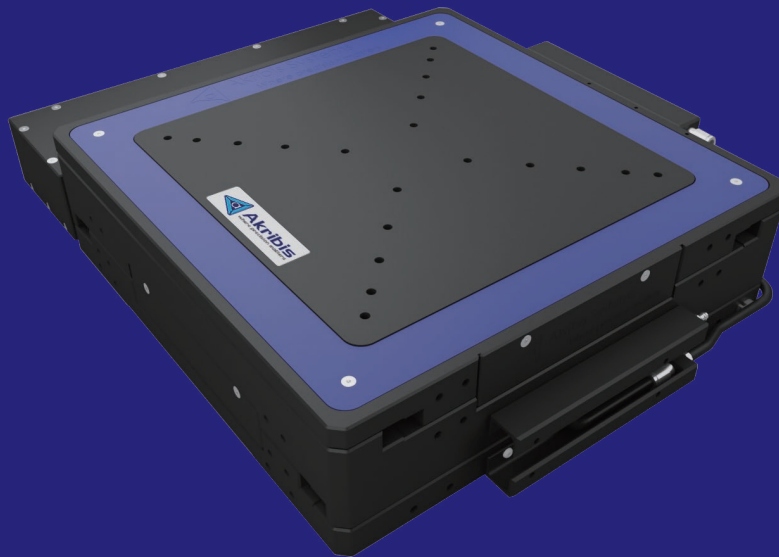




XRS SERIES

- ▶ High-precision XY axis positioning stage
- ▶ High force, low friction, High load capacity
- ▶ Cable management
- ▶ Three-piece integrated design

EN-25.12.1

XRS Series

Introduction

The XRS Series is an XY dual-axis direct-drive module. Multiple cable management options are available. The series features high precision, high force, low friction, fast response, excellent dynamic performance, and high load capacity. The Three-piece integrated design ensures superior straightness, flatness, and orthogonality.

Continuous Force $F_{cn} = 26.4\text{N} \sim 70.4\text{N}$

Peak Force $F_{pk} = 132.0\text{N} \sim 578.0\text{N}$

Features

- ▶ Anti-creep cross roller guide.
- ▶ Ironless linear motor has no cogging force.
- ▶ Optional cable management system.
- ▶ Stroke from 110mm × 110mm to 210mm × 210mm.

Applications

The XRS Series is an XY dual-axis horizontal positioning module. They are suitable for point-to-point sub-micron and nano-level rapid positioning, as well as applications with stringent dynamic performance requirements.

Applications include sensor detection/calibration in precision manufacturing, laser micro-processing in the laser industry, optical fiber alignment in optical communications, and wafer inspection in semiconductor manufacturing etc.

Linear Module Series	Linear motor Series	Continuous Force (F_{cn})							Unit: N	XY Stroke (mm)	Repeatability (μm)
		90.0	180.0	270.0	360.0	450.0	540.0	630.0			
 XRS-110	Lower Axis: AUM2-S3	26.4	132.0							110	±0.2 μm
	Upper Axis: AUM2-S3	26.4	132.0								
 XRS-160	Lower Axis: 2×AUM2-S4	70.4				352.0				160	±0.2 μm
	Upper Axis: AUM2-S4	35.2				176.0					
 XRS-210	Lower Axis: 2×AUM3-S2	114.0						578.0		210	±0.2 μm
	Upper Axis: AUM3-S2	57.0				289.0					

XRS-110

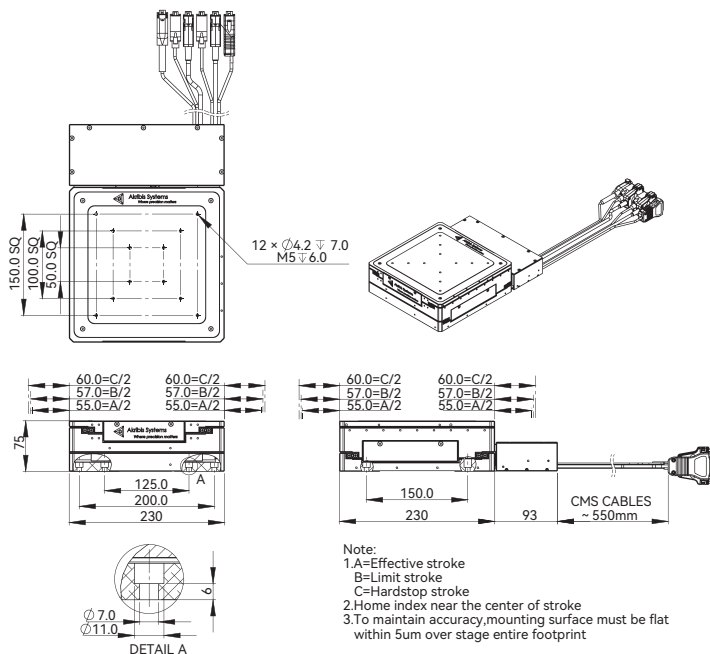
Specifications		Unit	Value	
Model Options		-	CM0	CM1
Motor	Lower Axis	-	AUM2-S3	
	Upper Axis	-	AUM2-S3	
Continuous Force	Lower Axis	N	26.4	
	Upper Axis	N	26.4	
Peak Force	Lower Axis	N	132.0	
	Upper Axis	N	132.0	
Mechanical Specifications		Unit	Value	
Model Options		-	CM0	CM1
Stroke		mm	110	
Resolution		μm	SINCOS(4096X)	
Repeatability		μm	±0.2	
Horizontal Straightness		μm	±2.0	
Vertical Straightness		μm	±2.0	
Pitch		arcsec	12	
Yaw		arcsec	12	
Orthogonality		arcsec	20	
Rated Payload ^①		kg	10	
No-load Moving Mass	Lower Axis	kg	7.1	
	Upper Axis	kg	2.7	
No-load Total Mass		kg	10.9	
Max Allowable Roll Moment ^①		Nm	6.0	
Max Allowable Pitch Moment ^①		Nm	6.0	
Max Allowable Yaw Moment ^①		Nm	6.0	

① This value is based on providing a higher control bandwidth, please contact cust-service@akribis-sys.com for higher load requirements.

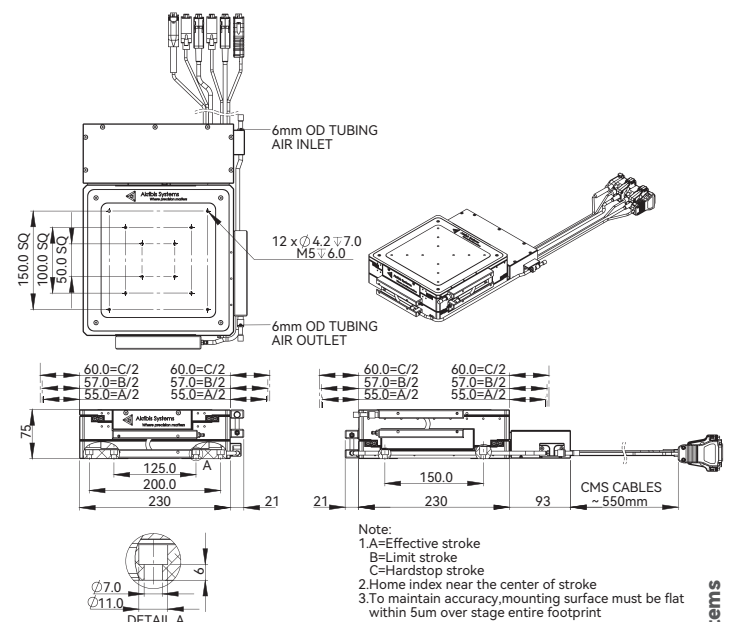
★ All values are measured based on module fully mounted on a 5μm granite table.
All values are measured according to Akribis measuring standard.

Dimension

XRS-110-CM0



XRS-110-CM1



XRS Series

XRS-160

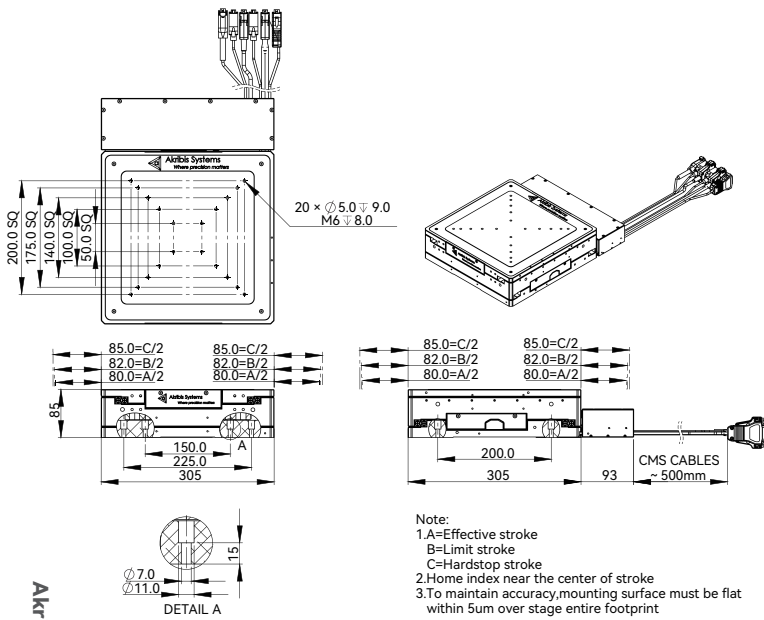
Specifications		Unit	Value	
Model Options		-	CM0	CM1
Motor	Lower Axis	-	2×AUM2-S4	
	Upper Axis	-	AUM2-S4	
Continuous Force	Lower Axis	N	70.4	
	Upper Axis	N	35.2	
Peak Force	Lower Axis	N	352.0	
	Upper Axis	N	176.0	
Mechanical Specifications		Unit	Value	
Model Options		-	CM0	CM1
Stroke		mm	160	
Resolution		μm	SINCOS(4096X)	
Repeatability		μm	±0.2	
Horizontal Straightness		μm	±2.0	
Vertical Straightness		μm	±2.0	
Pitch		arcsec	12	
Yaw		arcsec	12	
Orthogonality		arcsec	10	
Rated Payload ^①		kg	15	
No-load Moving Mass	Lower Axis	kg	16.1	
	Upper Axis	kg	6.0	
No-load Total Mass		kg	24.2	
Max Allowable Roll Moment ^①		Nm	9.5	
Max Allowable Pitch Moment ^①		Nm	9.5	
Max Allowable Yaw Moment ^①		Nm	9.5	

① This value is based on providing a higher control bandwidth, please contact cust-service@akribis-sys.com for higher load requirements.

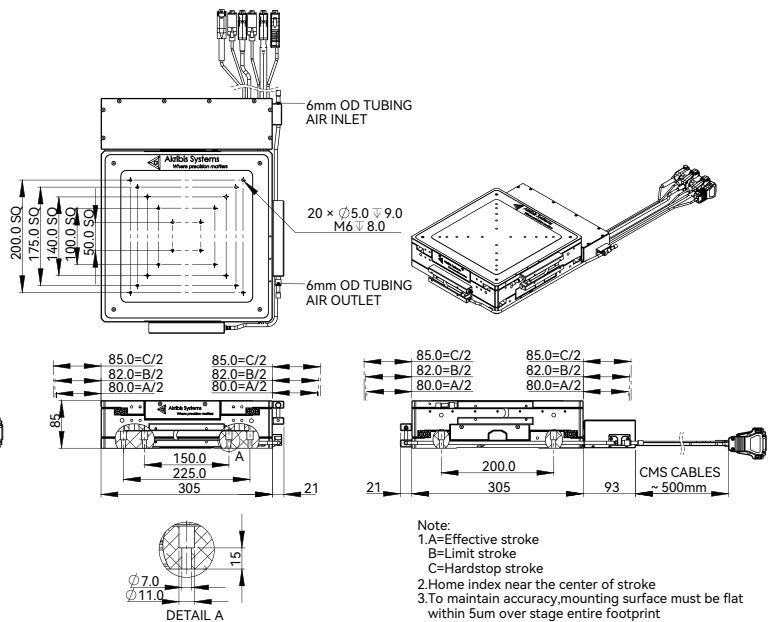
★ All values are measured based on module fully mounted on a 5μm granite table.
All values are measured according to Akribis measuring standard.

Dimension

XRS-160-CM0



XRS-160-CM1



XRS-210

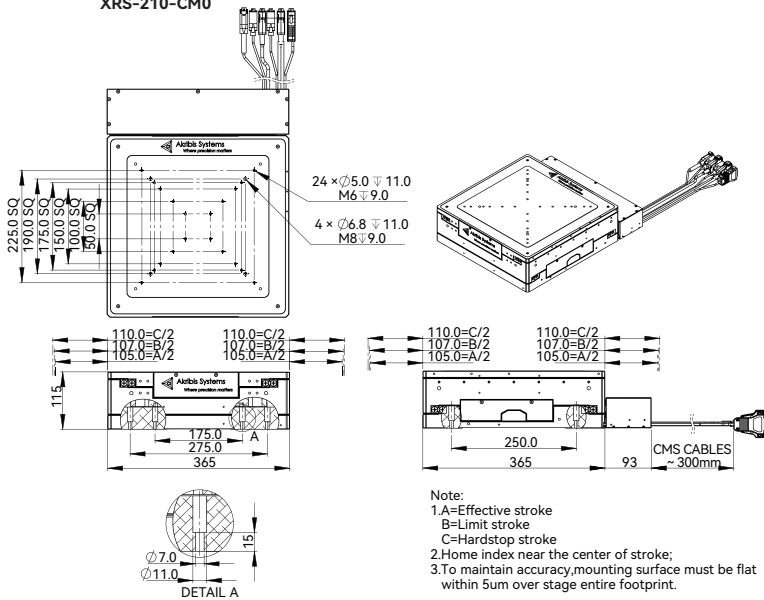
Specifications		Unit	Value	
Model Options		-	CM0	CM1
Motor	Lower Axis	-	2×AUM3-S2	
	Upper Axis	-	AUM3-S2	
Continuous Force	Lower Axis	N	114.0	
	Upper Axis	N	57.0	
Peak Force	Lower Axis	N	578.0	
	Upper Axis	N	289.0	
Mechanical Specifications		Unit	Value	
Model Options		-	CM0	CM1
Stroke		mm	210	
Resolution		μm	SINCOS(4096X)	
Repeatability		μm	±0.2	
Horizontal Straightness		μm	±2.0	
Vertical Straightness		μm	±2.0	
Pitch		arcsec	15	
Yaw		arcsec	15	
Orthogonality		arcsec	10	
Rated Payload ^①		kg	25	
No-load Moving Mass	Lower Axis	kg	33.7	
	Upper Axis	kg	12.3	
No-load Total Mass		kg	48.5	
Max Allowable Roll Moment ^①		Nm	25.0	
Max Allowable Pitch Moment ^①		Nm	25.0	
Max Allowable Yaw Moment ^①		Nm	25.0	

① This value is based on providing a higher control bandwidth, please contact cust-service@akribis-sys.com for higher load requirements.

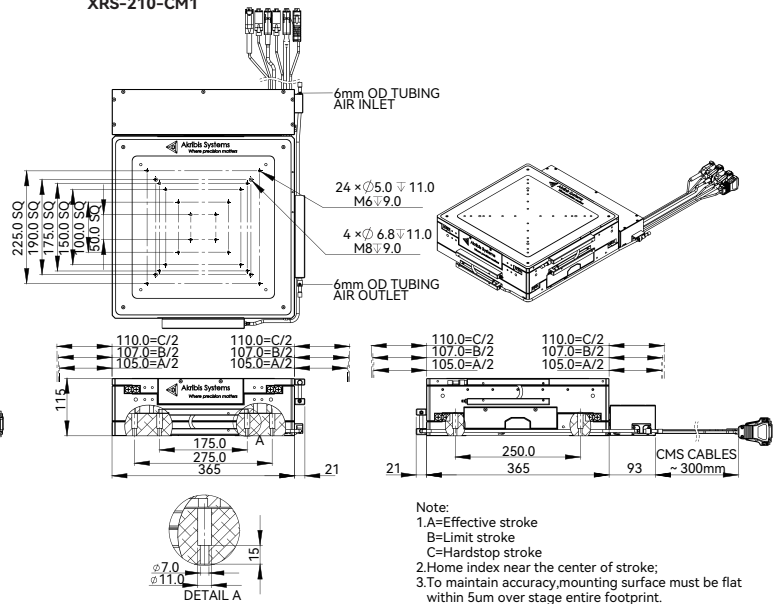
★ All values are measured based on module fully mounted on a 5μm granite table.
All values are measured according to Akribis measuring standard.

■ Dimension

XRS-210-CM0



XRS-210-CM1



XRS Series

Ordering Part Number (OPN)

XRS-110-CM0

Model:

XRS

Effective Stroke:

110: 110mm

160: 160mm

210: 210mm

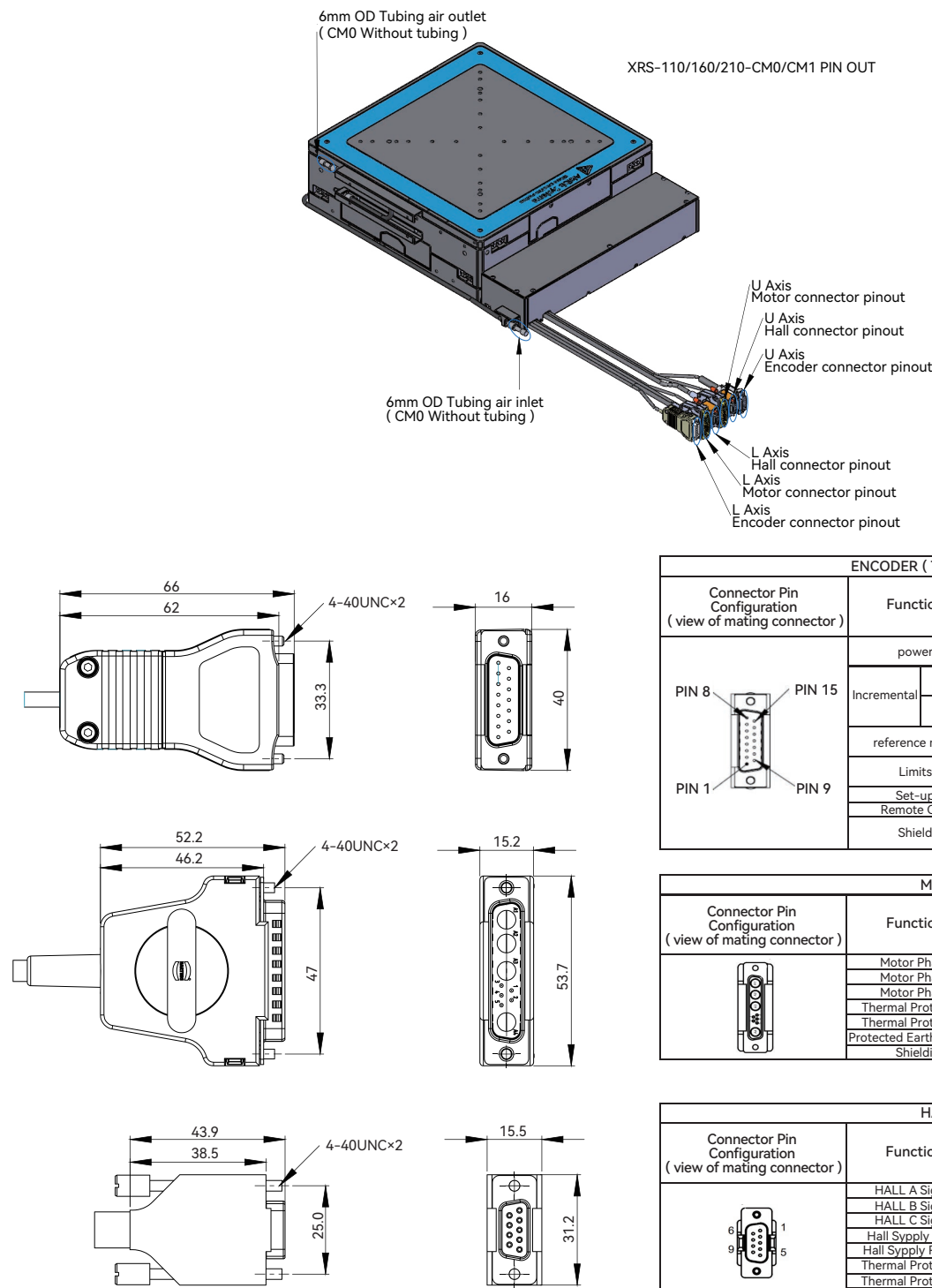
Cable Management:

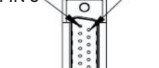
CM0: No additional cable management

CM1: Cable management for air/vacuum line

★ Products can be customized to meet specific working environments, please contact cust-service@akribis-sys.com.

XRS Series EE Interface Diagram



ENCODER (TONIC SINCOS)							
Connector Pin Configuration (view of mating connector)		Function		Signal		Color	Pinout
		power		5V		Brown	4, 5
				0V		White	12, 13
		Incremental	Cosine	V1	+	Red	9
					-	Blue	1
			Sine	V2	+	Yellow	10
					-	Green	2
		reference mark		V0	+	Violet	3
					-	Grey	11
		Limits		Vp		Pink	7
				Vg		Black	8
		Set-up		VX		Clear	6
		Remote CAL		CAL		Orange	14
		Shield		Linner		Green/Yellow	*
				Outer		Outer screen	Case

Motor				
Connector Pin Configuration (view of mating connector)	Function	Signal	Color	Pinout
	Motor Phase	M1	Yellow/Grey	A1
	Motor Phase	M2	Blue/Orange	A2
	Motor Phase	M3	Red/Green	A3
	Thermal Protection	Temp+	Brown	1
	Thermal Protection	Temp-	Brown/Black	2
	Protected Earth Ground	PE	Yellow/Green	A4
	Shielding	Shield	Shield	Case

HALL				
Connector Pin Configuration (view of mating connector)	Function	Signal	Color	Pinout
	HALL A Signal	Ha	Green	1
	HALL B Signal	Hb	Yellow	2
	HALL C Signal	Hc	Gray	3
	Hall Supply Input	+5V	Brown	4
	Hall Supply Return	0V	White	5
	Thermal Protection	Temp+	Pink	8
	Thermal Protection	Temp-	Blue	9
	Shielding	Shield	Screen	Case