

Catalog Number Explanation

Kinetix 2000 drive catalog numbers and descriptions are listed in the table below.

Kinetix 2000 Drive Catalog Numbers

Integrated Axis Modules (230V)	Catalog Number
Kinetix 2000, IAM, 230V, 3 kW ⁽¹⁾ Converter, 1 A Inverter	2093-AC05-MP1
Kinetix 2000, IAM, 230V, 3 kW ⁽¹⁾ Converter, 2 A Inverter	2093-AC05-MP2
Kinetix 2000, IAM, 230V, 3 kW ⁽¹⁾ Converter, 3 A Inverter	2093-AC05-MP5
Axis Modules (230V)	
Kinetix 2000, AM, 230V, 1 A Inverter	2093-AMP1
Kinetix 2000, AM, 230V, 2 A Inverter	2093-AMP2
Kinetix 2000, AM, 230V, 3 A Inverter	2093-AMP5
Kinetix 2000, AM, 230V, 6 A Inverter	2093-AM01
Kinetix 2000, AM, 230V, 9 A Inverter	2093-AM02
Power Rails	
Kinetix 2000, Single-Axis Power Rail	2093-PRS1
Kinetix 2000, Two-Axis Power Rail	2093-PRS2
Kinetix 2000, Three-Axis Power Rail	2093-PRS3
Kinetix 2000, Four-Axis Power Rail	2093-PRS4
Kinetix 2000, Five-Axis Power Rail	2093-PRS5
Kinetix 2000, Seven-Axis Power Rail	2093-PRS7
Kinetix 2000, Eight-Axis Power Rail with Shunt or Slot Filler	2093-PRS8S
Shunt Module	
Kinetix 2000, SM, 230V, 50 W	2093-ASP06
Slot Filler	
Kinetix 2000, SF, Power Rail Slot Filler	2093-PRF

⁽¹⁾ Derated to 2 kW for single-phase operation.

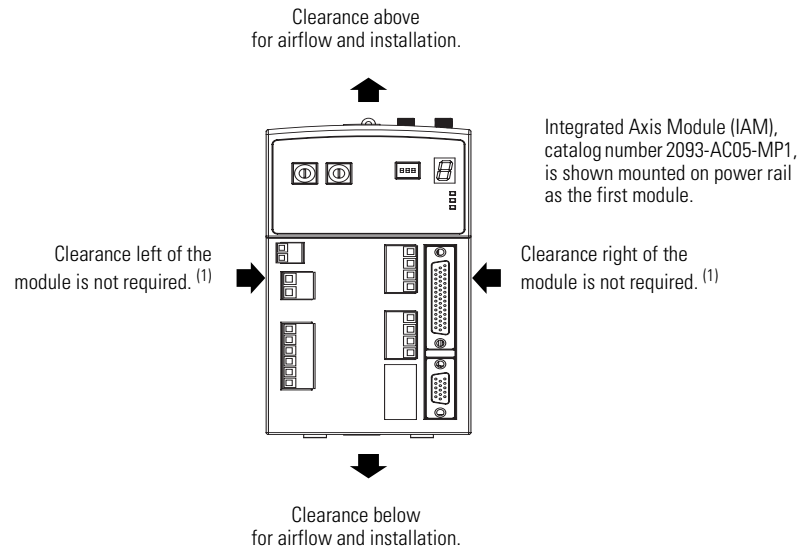
Minimum Clearance Requirements

This section provides information to assist you in sizing your cabinet and positioning your Kinetix 2000 system components.

IMPORTANT

Mount the module in an upright position. Do not mount the module on its side.

Minimum Clearance Requirements



(1) The power rail, catalog number 2093-PRSxx, does not extend left of the first module or right of the last module.

Minimum Clearance Dimensions

Cat. No.	Clearance Above, Min	Clearance Below, Min	Cabinet Depth Clearance, Min ⁽¹⁾	
2093-AC05-MP1, 2093-AC05-MP2, 2093-AC05-MP5, 2093-AMP1, 2093-AMP2, 2093-AMP5, 2093-AM01, 2093-AM02	50.8 mm (2.0 in.)	50.8 mm (2.0 in.)	200 mm (7.9 in.)	If 15-pin connector kit, catalog number 2090-K2CK-D15M, is attached.
			235 mm (9.25 in.)	44-pin connector kit options include: <ul style="list-style-type: none"> • 2090-U3BK-D44xx connector kit (containing a 2090-U3BK-D44 terminal block and 2090-U3BK-D44xx cable) • 2090-U3BK-D44 terminal block and custom-built cable. • 2090-U3BK-D44 terminal block and flying lead cable.
2093-ASP06	305 mm (12.0 in.)	50.8 mm (2.0 in.)	200 mm (7.9 in.)	
2093-PRF	None	None	None	

(1) Additional clearance required to accommodate cable bend restrictions.

Inverter Power Specifications

The following tables list power specifications for the inverter section that resides within an integrated axis module or an axis module.

IAM Inverter Power Specifications

Attribute	2093-AC05-MP1	2093-AC05-MP2	2093-AC05-MP5
Bandwidth Velocity Loop ⁽¹⁾ Current Loop	500 Hz 860 Hz		
PWM frequency	8 kHz		
Nominal input voltage	325V dc		
Continuous current (rms)	1.0 A	2.0 A	3.0 A
Continuous current (0-pk)	1.41 A	2.83 A	4.24 A
Peak current (rms)	3.0 A	6.0 A	9.0 A
Peak current (0-pk)	4.20 A	8.48 A	12.7 A
Peak output current time, max	3 s from 0% drive utilization (0% soak)		
Continuous power out, nom	0.3 kW	0.6 kW	0.9 kW
Efficiency	98%		
Capacitance	200 μ F		
Capacitive energy absorption	7.5 J		
Inverter PCB leakage current	1 mA		

⁽¹⁾ Bandwidth values in the velocity loop vary based on tuning parameters and mechanical components.

AM Inverter Power Specifications

Specification	2093-AMP1	2093-AMP2	2093-AMP5	2093-AM01	2093-AM02
Bandwidth ⁽¹⁾ Velocity Loop Current Loop	500 Hz 860 Hz				
PWM frequency	8 kHz				
Nominal input voltage	325V dc				
Continuous current (rms)	1.0 A	2.0 A	3.0 A	6.0 A	9.5 A
Continuous current (0-pk)	1.41 A	2.83 A	4.24 A	8.48 A	13.4 A
Peak current (rms)	3.0 A	6.0 A	9.0 A	18.0 A	28.5 A
Peak current (0-pk)	4.20 A	8.48 A	12.7 A	25.5 A	40.3 A
Peak output current time (max)	3 s from 0% drive utilization (0% soak)				
Continuous power out (nom)	0.3 kW	0.6 kW	0.9 kW	1.9 kW	3.0 kW
Efficiency	98%				
Capacitance	200 μ F			540 μ F	
Capacitive energy absorption	7.5 J			20 J	
Inverter PCB leakage current	1 mA				

⁽¹⁾ Bandwidth values vary based on tuning parameters and mechanical components.

Power Dissipation Specifications

Use the following table to size an enclosure and calculate required ventilation for your Kinetix 2000 system.

Kinetix 2000 Modules		Usage as a Percentage of Rated Power Output (Watts)				
		20%	40%	60%	80%	100%
Converter (IAM) ⁽¹⁾						
2093-AC05-MP1	Three-phase	7.0	10.5	14.0	17.4	20.9
2093-AC05-MP2						
2093-AC09-MP5						
2093-AC05-MP1	Single-phase	5.8	8.0	10.3	12.6	14.8
2093-AC05-MP2						
2093-AC09-MP5						
Inverter (IAM and AM) ⁽¹⁾						
2093-AC05-MP1 and 2093-AMP1		31.6	33.6	35.6	37.6	39.6
2093-AC05-MP2 and 2093-AMP2		33.0	36.4	39.8	43.3	46.8
2093-AC05-MP5 and 2093-AMP5		36.2	42.9	49.8	56.8	63.9
2093-AM01		38.3	46.7	55.3	64.1	73.1
2093-AM02		44.3	55.6	67.3	79.2	91.4
Shunt module (SM)						
2093-ASP06		35.8	45.8	55.8	65.8	75.8
Power Rail						
2093-PRSxx		0	0	0	0	0
Connector Kit						
2093-K2CK-D15M		0	0	0	0	0

⁽¹⁾ Internal shunt power is not included in the calculations and must be added based on utilization.

Environmental Specifications

Attribute	Operational Range	Storage Range (non-operating)
Ambient Temperature	0...50 °C (32...122 °F)	-40...85 °C (-40...185 °F)
Relative Humidity	5...95% noncondensing	5...95% noncondensing
Altitude	1000 m (3281 ft) 3000 m (9843 ft) with derating ⁽¹⁾	3000 m (9843 ft) during transport
Environmental Rating	IP2X (EN60529) For use only in a Pollution Degree 2 Environment (UL508c, section 2.7) Open Device (UL508c, section 2.5)	
Vibration	5...55 Hz @ 0.35 mm (0.014 in.) double amplitude, continuous displacement; 55...500 Hz @ 2.0 g peak constant acceleration	
Shock	15 g, 11 ms half-sine pulse (3 pulses in each direction of 3 mutually perpendicular directions)	
Conformal Coating	IB31: DSP and SERCOS pins, anti-dust and anti-humidity 1B73LSE: Power Rail connector pins, Converter, Inverter, Shunt, Power Rail, and Slot Filler PCB assemblies, clear UL creepage and clearance issue.	

⁽¹⁾ Peak current output is derated by 15% for each 1000 m over 1000 m (3281 ft).

Weight Specifications

Kinetix 2000 Module	Catalog Number	Description, Approx. kg (lb)
IAM	2093-AC05-MP1	1.32 (2.9)
	2093-AC05-MP2	
	2093-AC05-MP5	
AM	2093-AMP1	0.67 (1.5)
	2093-AMP2	
	2093-AMP5	
	2093-AM01	0.95 (2.1)
	2093-AM02	
SM	2093-ASP06	0.59 (1.3)

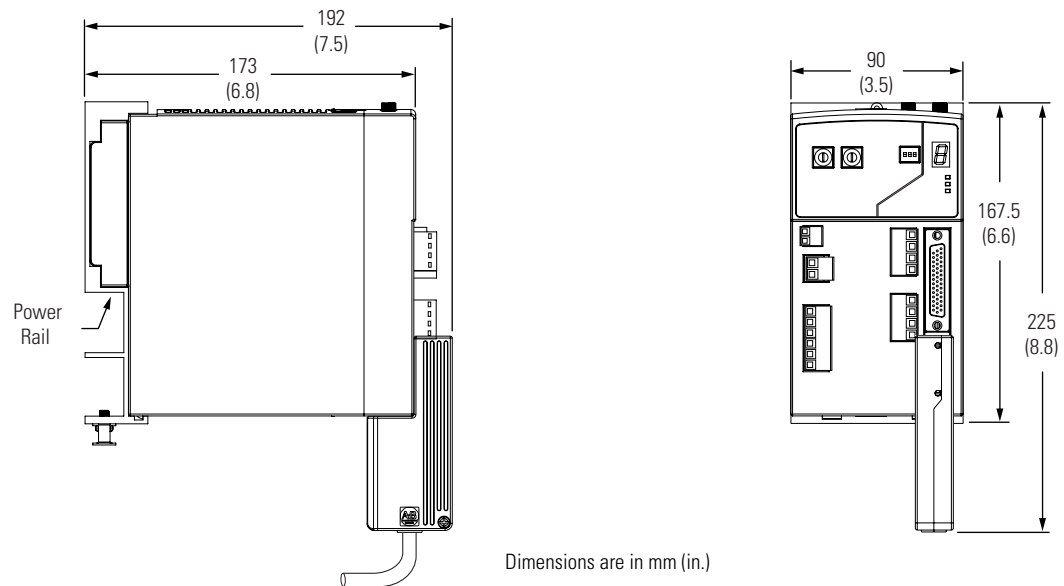
Kinetix 2000 Module	Catalog Number	Description, Approx. kg (lb)
Power Rails (Slim)	2093-PRS1	0.27 (0.6)
	2093-PRS2	0.38 (0.8)
	2093-PRS3	0.51 (1.1)
	2093-PRS4	0.64 (1.4)
	2093-PRS5	0.77 (1.7)
	2093-PRS7	1.03 (2.3)
	2093-PRS8S	1.28 (2.8)
Slot Filler Module	2093-PRF	0.15 (0.3)

Product Dimensions

This section contains product dimensions for your Kinetix 2000 system components.

Integrated Axis Module Dimensions

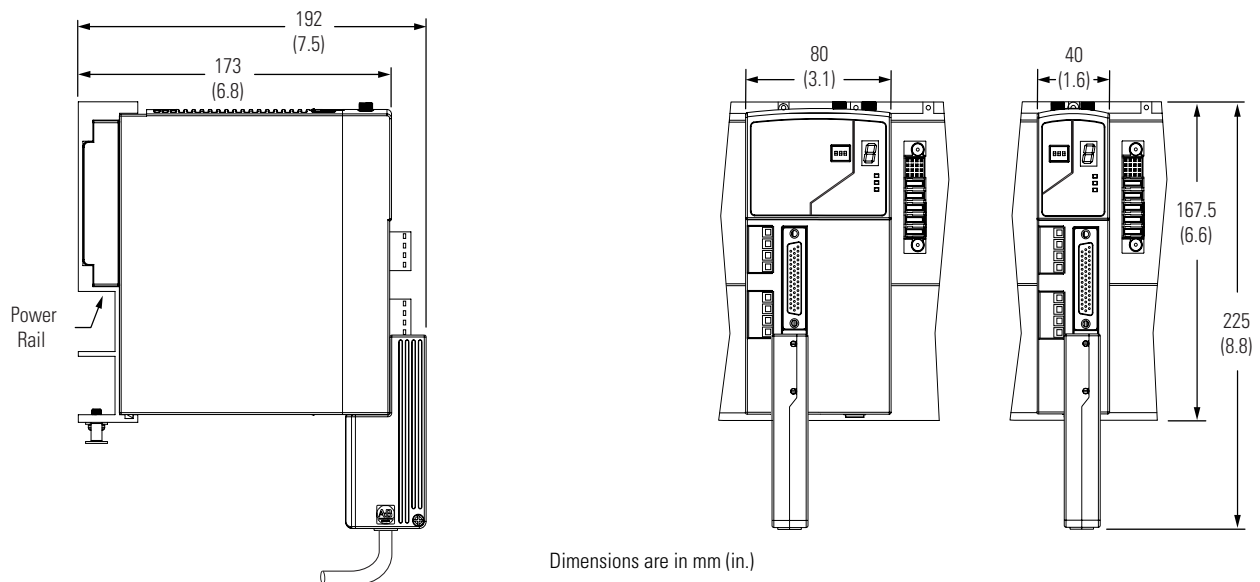
2093-AC05-MP1, 2093-AC05-MP2, 2093-AC05-MP5



Modules are shown mounted to the power rail and the dimensions reflect that in the depth of the module.

Axis Module Dimensions

2093-AM01, 2093-AM02 (double-wide), and 2093-AMP1, 2093-AMP2, 2093-AMP5 (single-wide)



Modules are shown mounted to the power rail and the dimensions reflect that in the depth of the module.

Kinetix 2000 Capacitance Values

Use the tables below when calculating total bus capacitance and additional bus capacitance for your Kinetix 2000 common bus application.

IAM and AM (230V) Modules

IAM Converter (230V)	Capacitance μF	IAM or AM Inverter (230V)	Capacitance μF
2093-AC05-MP1	540	2093-AC05-MP1 or 2093-AMP1	200
2093-AC05-MP2		2093-AC05-MP2 or 2093-AMP2	
2093-AC05-MP5		2093-AC05-MP5 or 2093-AMP5	
		2093-AM01	540
		2093-AM02	

SM (230V) Module

SM (230V)	Capacitance μF
2093-ASP06	164