



Kinetix 350 Single-axis EtherNet/IP Servo Drives

Catalog Numbers 2097-V31PR0-LM, 2097-V31PR2-LM,
2097-V32PR0-LM, 2097-V32PR2-LM, 2097-V32PR4-LM,
2097-V33PR1-LM, 2097-V33PR3-LM, 2097-V33PR5-LM,
2097-V33PR6-LM, 2097-V34PR3-LM, 2097-V34PR5-LM,
2097-V34PR6-LM



Allen-Bradley

by **ROCKWELL AUTOMATION**

User Manual

Original Instructions

Catalog Number Explanation

Kinetix 350 drive catalog numbers and descriptions are listed in these tables.

Table 3 - Kinetix 350 Drives (Single-phase)

Cat. No.	Input Voltage	Continuous Output Current A (0-pk)	Features
2097-V31PR0-LM	120V, 1 Ø 240V, 1 Ø	2.8	120V Doubler mode - Safe Torque Off
2097-V31PR2-LM		5.7	
2097-V32PR0-LM	240V, 1 Ø	2.8	- Integrated AC line filter - Safe Torque Off
2097-V32PR2-LM		5.7	
2097-V32PR4-LM		11.3	

Table 4 - Kinetix 350 Drives (Single/Three-phase)

Cat. No.	Input Voltage	Continuous Output Current A (0-pk)	Features
2097-V33PR1-LM	120V, 1 Ø 240V, 1 Ø 240V, 3 Ø	2.8	Safe Torque Off
2097-V33PR3-LM		5.7	
2097-V33PR5-LM		11.3	
2097-V33PR6-LM		17.0	

Table 5 - Kinetix 350 Drives (Three-phase)

Cat. No.	Input Voltage	Continuous Output Current A (0-pk)	Features
2097-V34PR3-LM	480V, 3 Ø	2.8	Safe Torque Off
2097-V34PR5-LM		5.7	
2097-V34PR6-LM		8.5	

Table 6 - Kinetix 350 Drive Accessories

Cat. No.	Drive Components
2097-Fx	AC line filters
2097-TB1	Terminal block for I/O connector
2097-Rx	Shunt resistors
2097-PGMR	Memory module programmer
2097-MEM	Memory modules 12 pack

Table 7 - Fuse and Circuit Breaker (CB) Specifications

Drive Cat. No.	Drive Voltage	Phase	UL Applications			IEC (non-UL) Applications		
			Fuses (Bussmann) Cat. No.	Miniature CB ⁽¹⁾ Cat. No.	Motor Protection CB, ^{(1) (2)} Self-protected CMC Cat. No.	Miniature CB ⁽¹⁾ Cat. No.		Motor Protection CB ⁽¹⁾ Cat. No.
2097-V31PR0-LM	120V	Single-phase (voltage doubler)	KTK-R-20 (20 A)	1489-M1C200	140MT-D9E-C20	1489-M1C200	1492-SPM1D200	140MT-D9E-C20
	120/240V	Single-phase	KTK-R-10 (10 A)	1489-M1C100	140MT-C3E-C10	1489-M1C100	1492-SPM1D100	140MT-C3E-C10
2097-V31PR2-LM	120V	Single-phase (voltage doubler)	KTK-R-30 (30 A)	1489-M1C300	140M-F8E-C32	1489-M1C300	1492-SPM1D300	140M-F8E-C32
	120/240V	Single-phase	KTK-R-20 (20 A)	1489-M1C200	140MT-D9E-C20	1489-M1C200	1492-SPM1D200	140MT-D9E-C20
2097-V32PR0-LM	240V	Single-phase	KTK-R-20 (20 A)	1489-M1C150	140MT-D9E-C16	1489-M1C150	1492-SPM1D150	140MT-D9E-C16
2097-V32PR2-LM			KTK-R-20 (20 A)	1489-M1C200	140MT-D9E-C20	1489-M1C200	1492-SPM1D200	140MT-D9E-C20
2097-V32PR4-LM			KTK-R-30 (30 A)	1489-M1C300	140M-F8E-C32	1489-M1C300	1492-SPM1D320	140M-F8E-C32
2097-V33PR1-LM	120/240V	Single-phase	KTK-R-20 (20 A)	1489-M1C200	140MT-D9E-C20	1489-M1C200	1492-SPM1D200	140MT-D9E-C20
	240V	Three-phase	KTK-R-15 (15 A)	1489-M3C150	140MT-D9E-C16	1489-M3C150	1492-SPM3D150	140MT-D9E-C16
2097-V33PR3-LM	120/240V	Single-phase	KTK-R-20 (20 A)	1489-M1C200	140MT-D9E-C20	1489-M1C200	1492-SPM1D200	140MT-D9E-C20
	240V	Three-phase	KTK-R-15 (15 A)	1489-M3C150	140MT-D9E-C16	1489-M3C150	1492-SPM3D150	140MT-D9E-C16
2097-V33PR5-LM	120/240V	Single-phase	KTK-R-30 (30 A)	1489-M1C300	140M-F8E-C32	1489-M1C300	1492-SPM1D300	140M-F8E-C32
	240V	Three-phase	KTK-R-20 (20 A)	1489-M3C200	140MT-D9E-C20	1489-M3C200	1492-SPM3D200	140MT-D9E-C20
2097-V33PR6-LM	120/240V	Single-phase	LPJ-40SP (40 A) Class J	N/A	140M-F8E-C32	N/A	N/A	140M-F8E-C32
	240V	Three-phase	KTK-R-30 (30 A)	1489-M3C300		1489-M3C300	1492-SPM3D300	
2097-V34PR3-LM	480V	Three-phase	KTK-R-10 (10 A)	1489-M3C100	140MT-C3E-C10	1489-M3C100	1492-SPM3D100	140MT-C3E-C10
2097-V34PR5-LM			KTK-R-10 (10 A)	1489-M3C100	140MT-C3E-C10	1489-M3C100	1492-SPM3D100	140MT-C3E-C10
2097-V34PR6-LM			KTK-R-20 (20 A)	1489-M3C200	140MT-D9E-C20	1489-M3C200	1492-SPM3D200	140MT-D9E-C20

(1) Bulletin 1492 and 1489 circuit protection devices have lower short-circuit current ratings than Bulletin 140M devices.

See <https://www.rockwellautomation.com/en-us/products/hardware.html> for product literature with specific short-circuit ratings.

(2) For UL applications, Bulletin 140M devices are applied as self-protected combination motor controllers.

Contactor Ratings

Table 8 - Kinetix 350 Drives (120/240V)

Cat. No.	Drive Voltage	AC Coil Contactor	DC Coil Contactor
2097-V31PR0-LM	120V	100-C23x10	100-C23Zx10
	240V	100-C12x10	100-C12Zx10
2097-V31PR2-LM	120V	100-C30x10	100-C30Zx10
	240V	100-C23x10	100-C23Zx10

Table 9 - Kinetix 350 Drives (240V)

Cat. No.	Drive Voltage	AC Coil Contactor	DC Coil Contactor
2097-V32PR0-LM	240V	100-C23x10	100-C23Zx10
2097-V32PR2-LM	240V	100-C23x10	100-C23Zx10
2097-V32PR4-LM	240V	100-C30x10	100-C30Zx10
2097-V33PR1-LM	120V	100-C23x10	100-C23Zx10
	240V	100-C16x10	100-C16Zx10
2097-V33PR3-LM	120V	100-C23x10	100-C23Zx10
	240V	100-C16x10	100-C16Zx10
2097-V33PR5-LM	120V	100-C30x10	100-C30Zx10
	240V	100-C23x10	100-C23Zx10
2097-V33PR6-LM	120V	N/A	N/A
	240V	100-C30x10	100-C30Zx10

Table 10 - Kinetix 350 Drives (480V)

Cat. No.	Drive Voltage	AC Coil Contactor	DC Coil Contactor
2097-V34PR3-LM	480V	100-C12x10	100-C12Zx10
2097-V34PR5-LM		100-C12x10	100-C12Zx10
2097-V34PR6-LM		100-C23x10	100-C23Zx10

Transformer Selection

The Kinetix 350 drive does not require an isolation transformer for three-phase input power. However, a transformer can be required to match the voltage requirements of the controller to the available service.

To choose the size of a transformer for the main AC power inputs, refer to [page 17](#) and [Transformer Specifications for Input Power](#) on [page 19](#).

IMPORTANT If you are using an autotransformer, make sure that the phase to neutral/ground voltages do not exceed the input voltage ratings of the drive.

In this example, the enclosure must have an exterior surface of at least 4.53 m². If any portion of the enclosure is not able to transfer heat, exclude heat in the calculation.

Because the minimum cabinet depth to house the Kinetix 350 system (selected for this example) is 332 mm (13 in.), the cabinet must be approximately 2000 x 700 x 332 mm (78.7 x 27.6 x 13.0 in.) HxWxD.

$$2 \times (0.332 \times 0.70) + 2 \times (0.332 \times 2.0) + 2 \times (0.70 \times 2.0) = 4.59 \text{ m}^2$$

Because this cabinet size is considerably larger than what is necessary to house the system components, it can be more efficient to provide a means of cooling in a smaller cabinet. Contact your cabinet manufacturer for options available to cool your cabinet.

Power Dissipation Specifications

This table shows the maximum power dissipation of each drive. Use this table to size an enclosure and calculate required ventilation for your Kinetix 350 drive system.

Cat. No.	Power Dissipation, W
2097-V31PR0-LM	28
2097-V31PR2-LM	39
2097-V32PR0-LM	28
2097-V32PR2-LM	39
2097-V32PR4-LM	67
2097-V33PR1-LM	28
2097-V33PR3-LM	39
2097-V33PR5-LM	67
2097-V33PR6-LM	117
2097-V34PR3-LM	39
2097-V34PR5-LM	58
2097-V34PR6-LM	99

Minimum Clearance Requirements

This section provides information to help you choose the size of your cabinet and the placement of your Kinetix 350 system components.

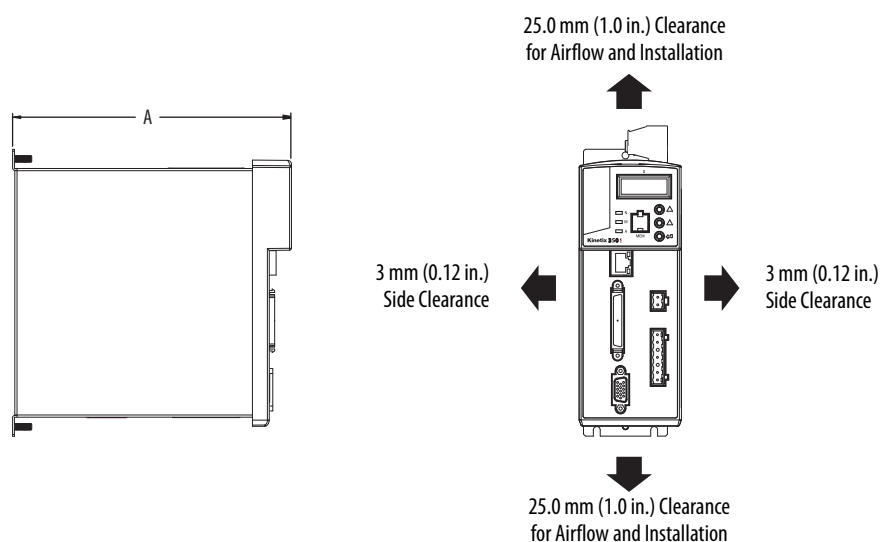
IMPORTANT Mount the module in an upright position as shown. Do not mount the drive module on its side.

[Figure 3](#) illustrates minimum clearance requirements for proper airflow and installation:

- Additional clearance is required depending on the accessory items installed.
- An additional 9.7 mm (0.38 in.) clearance is required left of the drive if the I/O expansion terminal block is used.
- An additional 26 mm (1.0 in.) clearance is required right of the drive when the heatsink is present.
- An additional 36 mm (1.42 in.) is required right of the drive when the side-mount line filter is present. An additional 50 mm (2.0 in.) is required behind the drive when the rear-mount line filter is present.
- An additional 5.0 mm (0.19 in.) clearance is required in front of the drive when the 2090-K2CK-D15M feedback connector kit is used.
- Additional clearance is required for the cables and wires that are connected to the top, front, and bottom of the drive.
- An additional 150 mm (6.0 in.) is required when the drive is mounted next to noise sensitive equipment or clean wireways.

See the Kinetix 3, 300, 350, 2000, 6000, 6200, 6500, 7000 Servo Drives Specifications Technical Data, publication [KNX-TD005](#), for Kinetix 350 drive dimensions.

Figure 3 - Minimum Clearance Requirements



Drive Cat. No.	A
2097-V31PR0-LM	185 (7.29)
2097-V31PR2-LM	185 (7.29)
2097-V32PR0-LM	230 (9.04)
2097-V32PR2-LM	230 (9.04)
2097-V32PR4-LM	230 (9.04)
2097-V33PR1-LM	185 (7.29)
2097-V33PR3-LM	185 (7.29)
2097-V33PR5-LM	185 (7.29)
2097-V33PR6-LM	230 (9.04)
2097-V34PR3-LM	185 (7.29)
2097-V34PR5-LM	185 (7.29)
2097-V34PR6-LM	230 (9.04)

See [page 20](#) for power dissipation specifications.