System Module Catalog Numbers

Catalog numbers consist of various characters, each of which identifies a specific version or option for that component. Use the catalog numbering table chart below to understand the configuration of your system module. For questions regarding product availability, contact your Allen-Bradley distributor.

1394 System Modules

1394 *x* - S J T *xx*-*x*- *xx*

RL = With RIO and AxisLink (can only be ordered with the -C, -L, or -T options)

Factory Installed Options [1, 2]
A = With ±10V dc analog input (HIM not included)
C = With IMC™ S Class integrated motion controller (supports four axes and four auxiliary encoder inputs
D = With SERCOS network interface
L = With IMC S Class integrated motion controller (supports one axis and two auxiliary encoder inputs [3]
T = With IMC S Class Turbo integrated motion controller.

kW Rating
05 = 5 kW
10 = 10 kW
22 = 22 kW (not available with the -L option)

Input Phase
T = Three-phase

Input Voltage
J = 360/480V ac, 50/60 Hz

Type
S = System Module

Series
C = Series C enhancements [4]
Blank = No Series C enhancements

Bulletin Number

[1] The Standard GMC and GMC Turbo system modules are identical except that the GMCTurbo (1394*x*-SJT*xx*-T) offers a SLC backplane interface and 64K of memory with a 32-bit processor while the Standard GMC (1394*x*-SJT*xx*-C) offers 32K of program memory with a 16-bit processor without the SLC interface.

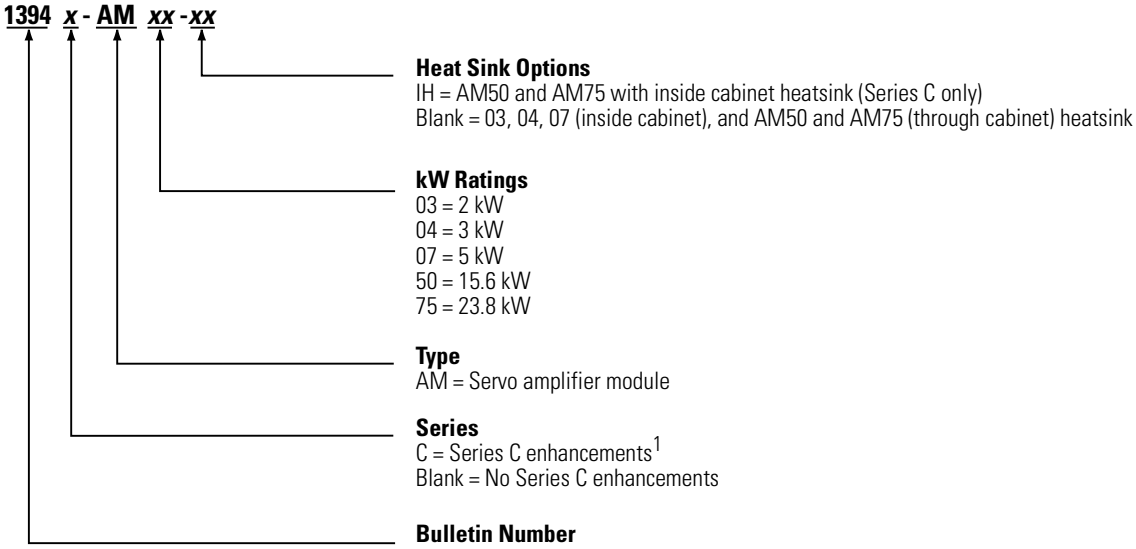
[2] The Standard GMC (1394C-SJT*xx*-L) is functionally the same as the (1394*x*-SJT*xx*-C) except it supports one axis and provides two auxiliary encoder inputs.

[3] Only available on 5 and 10 kW system modules.

[4] Enhanced system modules have Smart Power, improved terminations, and EMI filtering.

1394 Axis Modules Catalog Numbers

Catalog numbers consist of various characters, each of which identifies a specific version or option for that component. Use the catalog numbering table chart below to understand the configuration of your axis module. For questions regarding product availability, contact your Allen-Bradley distributor.



[1] Enhanced axis modules have improved terminations and EMI filtering.

1394 General System Specifications

The following section contains 1394 environmental, contact, contactors, fuse, circuit breaker, 24V logic input power and transformer, power dissipation, and communication specifications.

Environmental Specifications

The following section contains 1394 system environmental specifications.

Specification	Description	
Ambient Operating Temperature: System Module	1394*x*-SJT*xx-x*	0° C to 50° C (32° F to 122° F)
Ambient Operating Temperature Axis Module	1394*x*-AM03, -AM04, -AM07, -AM50-IH, -AM75-IH (Inside Cabinet)	0° C to 50° C (32° F to 122° F)
	1394-AM50 or -AM75 (Inside Cabinet)	0° C to 50° C (32° F to 122° F)
	1394-AM50 or -AM75 (Outside Cabinet)	0° C to 40° C (32° F to 104° F)
Relative Humidity	5-95% noncondensing	
Altitude	1000 m (3300 ft) - Derate 3% per 300 m (984.3 ft) up to 3000 m (10,000 ft)	
Vibration	Operating:	1g
	Non-operating:	2.5g
Shock	Operating:	15g
	Non-operating:	30g

Relay Contact Specifications

1394C-SJT*xx*-D SERCOS Interface System	
Specification	**Description**
Drive System OK	115V AC/24V DC, 1A inductive
Output 0-3	
Thermal switch (motor)	

Contactor (M1) Specifications

The following section contains 1394 system user-supplied contactor specifications.

Contactor		**1394-SJT05 and -SJT10 (Series A and B)**	**1394C-SJT05 and -SJT10 (Series C)**	**1394*x*-SJT22**
Rating		600V ac, 43A[1]	600V ac, 23A	600V ac, 37A
Recommended types:	AC Coil Operation	Allen-Bradley 100-C43*x*10[2,3]	Allen-Bradley 100-C23*x*10[2,3]	Allen-Bradley 100-C37*x*10[2,3]
	DC Coil Operation	Allen-Bradley 100-C43Z*x*10[2]	Allen-Bradley 100-C23Z*x*10[2]	Allen-Bradley 100-C37Z*x*10[2]

[1] Consider using a 60A contactor when the total capacitance of the axis modules is greater than 880 µF.

[2] *x* indicates coil voltage.

[3] A surge suppressor is required.

Fuse Specifications

System		**Fuse Description**	**Rating**
1394-SJT05 systems	Series A and B	Bussmann FRS-R-20A or equivalent	600V ac, 20A
1394C-SJT05 systems	Series C	Bussmann KTK-R-20 or equivalent	600V ac, 20A
		Bussmann LPJ-SP 20 or equivalent	600V ac, 20A
1394-SJT10 systems	Series A and B	Bussmann FRS-R-30A or equivalent	600V ac, 30A
1394C-SJT10 systems	Series C	Bussmann KTK-R-30 or equivalent	600V ac, 30A
		Bussmann LPJ-SP 30 or equivalent	600V ac, 30A
1394*x*-SJT22 systems		Bussmann FRS-R-35 or equivalent	600V ac, 35A
		Bussmann LPS-RK-SP 40 or equivalent	600V ac, 40A
		Bussmann LPJ-SP 45 or equivalent	600V ac, 45A

Circuit Breaker Specifications

While circuit breakers offer some convenience, there are limitations for their use. Circuit breakers do not handle high current inrush as well as fuses. The 1394 needs to be protected by a device having a short circuit interrupt current rating of the service capacity provided or a maximum of 100,000A.

If an upstream circuit protection device is rated for the overload current and short circuit rating, a supplementary circuit protection device (such as the 1492) can be used as the only 1394 branch circuit protection device. The upstream fully rated device let-through must be less than or equal to the 10 kA interrupt rating of the 1492.

The wiring interconnection in Figure 5.5 and Figure 5.6 provide examples of the needed protection and follows UL and NEC codes. Full compliance is dependent on final wiring design and installation.

Figure 5.5
Circuit Protection under NEC 1999 110-10 (preferred fully rated devices)

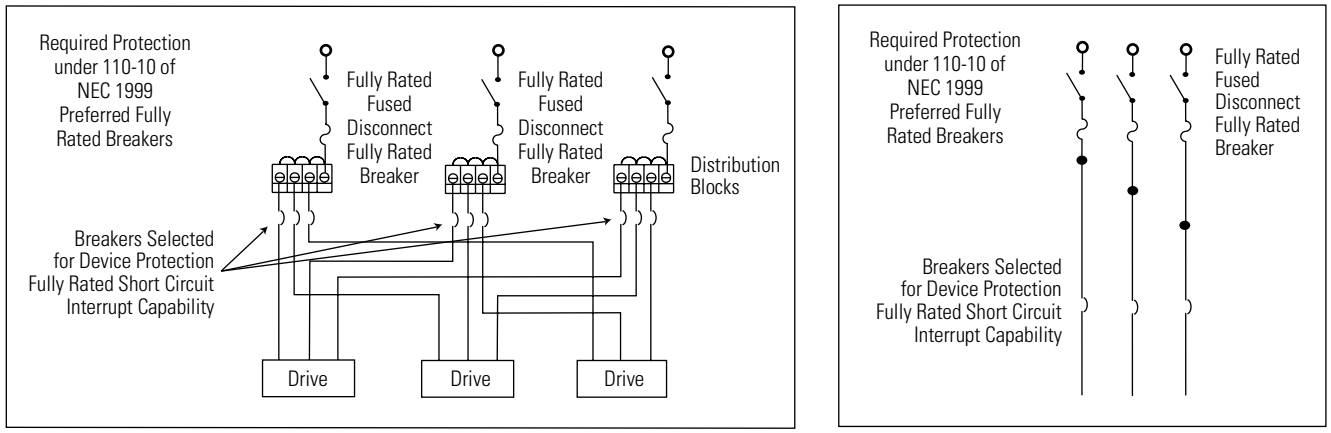
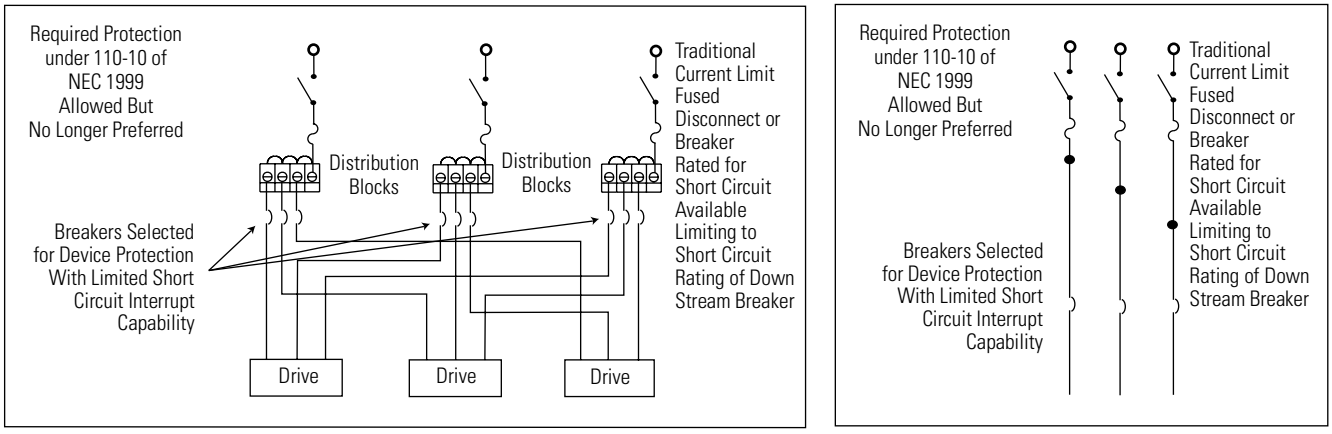


Figure 5.6
Circuit Protection under NEC 1999 110-10 (allowed but no longer preferred)



To avoid nuisance tripping, refer to the following table and select the appropriate combination of system module, supplementary circuit protection device, and axis modules.

Use System Module:	With Supplementary Circuit Protection Device:	And Axis Module Combination:
1394C-SJT05-D	1492-CB3-H300	Any combination of AM03 and AM04 up to 4 axis modules. Any combination of AM03, AM04, and AM07 where no more than two AM07s are being used. Use of other combinations of axis modules with this system module may result in nuisance tripping on power up due to a higher inrush current.
	A 1492 device is not recommended for this option.	Other combinations of AM07, AM50, and AM75s. Some local electrical codes require that the circuit breaker rating not exceed 400% of the full load device current. The inrush current draw of the 1394 in some combinations exceeds the 30A breaker and will result in nuisance tripping.
1394C-SJT10-D	1492-CB3-H500	All
1394C-SJT22-D	1492-CB3-H500	All

24V Logic Input Power Specifications

24V Logic Input Voltage	Frequency	Current		Recommended Fuse
		Axis	Maximum User-Supplied Power Supply	
19-28V ac RMS, single phase	50/60 Hz	1 axis	3.5A	Bussmann MDA-15 or equivalent
		2 axis	4.4A	
18.75-31.25V dc		3 axis	5.2A	
		4 axis	6.0A	

Input Transformer Specifications for 24V Control Power

Specification	Description	
	480V System	360V System
Input volt-amperes	200 to 259 VA	200 to 259 VA
Input voltage	480V RMS	360V RMS
Output voltage	24V RMS	24V RMS
Load regulation	2 to 5%	2 to 5%

Note: If the input volt-amperes is more than 350VA, adjust the load regulation to make the transformer leakage the same as or greater than the 250VA transformer with 2% regulation.

1394 System Power Dissipation Specifications

The following section contains the power dissipation characteristics of the 1394 system modules, axis modules, and internal and external shunt resistors.

IMPORTANT Use the power dissipation figures shown below to calculate cumulative system heat dissipation to ensure that the ambient temperature inside the enclosure does not exceed 50° C (122° F). To calculate total power dissipation, add the dissipation of the system module to the dissipation of the axis module(s).

System Modules

Percentage of Rated Power Output	Power Dissipation Watts		
	1394*x*-SJT05-*x*	**1394*x*-SJT10-*x***	**1394*x*-SJT22-*x***
20	66	70	100
40	70	77	150
60	73	84	200
80	77	81	250
100	80	98	300

Axis Modules

Percentage of Rated Power Output	Power Dissipation Watts								
	Total					**Inside Cabinet**		**Outside Cabinet**	
	AM03	**AM04**	**AM07**	**AM50[1] and AM50-IH[2]**	**AM75[1] and AM75-IH[2]**	**AM50[1]**	**AM75[1]**	**AM50[1]**	**AM75[1]**
20	24	27	33	56	85	18	18	38	67
40	30	36	48	95	145	18	18	77	127
60	36	45	63	139	212	18	18	138	194
80	42	54	78	183	279	18	18	165	261
100	48	63	93	227	346	18	18	209	324

[1] The AM50/75 are designed to mount with the rear heat sink extended outside the customer-supplied enclosure. If the modules are m ounted entirely inside the customer supplied enclosure, the full power dissipation is inside the cabinet (the sum of the inside/outside columns).

[2] The AM50/75-IH are designed to mount entirely inside the customer-supplied enclosure.

Internal Shunt Resistor for the 5 and 10 kW System

Specification	Description
Internal shunt resistor rating	200W continuous, 40,000W peak (two second maximum on time)
Internal shunt resistor resistance	16 ohms

Note: When the internal shunt resistor for 1394*x*-SJT05-*x* and -SJT10-*x* system module is active, some additional power will be dissipated. The maximum dissipation is 200W, however most applications will use less than 10% of this capacity.

External Shunt Resistor Kit for 5 and 10 kW Systems

Specification	Description
External shunt resistor rating	1400W continuous, 40,000W peak (two second maximum on time)
External shunt resistor resistance	16 ohms

Note: Use fuse replacement kit (1394-SR10A-FUSE-A) when replacing the 1394-SR10A shunt fuse.

External Shunt Module for 22 kW Systems

Specification	Description
External shunt resistor rating	300-3,600W continuous, 160,000W peak
External shunt resistor resistance	4 ohms

Maximum Feedback Cable Lengths

Although motor feedback cables are available in standard lengths up to 90 m (295.3 ft), the drive/motor/feedback combination may limit the maximum cable length, as shown in the tables below. These tables assume the use of recommended cables as shown in the *Drive Family/Motor Cable Combination Summary* table on page 9-3.

The maximum cable lengths for 1394 system/axis modules with MP-Series (460V) and 1326AB motors are given in the table below.

Drive Family	MPL-B (460V) Motors		1326AB (M2L/S2L) (460V) Motors	1326AB (460V) Motors
	Absolute High-Res [1] m (ft)	**Resolver** [2] m (ft)	**Absolute High-Resolution** [3] m (ft)	**Resolver** [4] m (ft)
1394C-SJT*xx*-D	90 (295.3)	90 (295.3)	90 (295.3)	90 (295.3)

[1] Refers to MPL-B*xxxx*S/M (single-turn or multi-turn) low inertia motors with absolute high-resolution feedback.

[2] Refers to MPL-B*xxxx*R low inertia motors with 2-pole resolver feedback.

[3] Refers to 1326AB-B*xxxx*-M2L/S2L (single-turn or multi-turn) motors with absolute high-resolution feedback.

[4] Refers to 1326AB-B*xxxx*-21 motors with resolver feedback.