Control Power Current Specifications

Kinetix 5700 servo drives, the accessory modules, and iTRAK power supply have different 24V DC power consumption. Factors to consider when calculating the combined current demand from your 24V DC power supply include the following:

- Catalog number for each drive in the system
- Whether servo motors include the holding brake option
- Whether the system includes capacitor modules or DC-bus conditioner modules
- Whether the system includes 2198T-W25K-ER iTRAK power supplies and the number of iTRAK motor modules supported

Control Power Current Specifications

Drive Module	**Drive Module Cat. No.**	**24V Current Per Module (non-brake motor)** [1] A_{DC}	**24V Inrush Current** [2] A
DC-bus Power Supplies	2198-P031	0.8	4.0
	2198-P070		
	2198-P141	1.9	
	2198-P208		
Regenerative Bus Supplies	2198-RP088	4.3	4.0
	2198-RP200	5.4	
	2198-RP263	9.1	
	2198-RP312		
Dual-axis Inverters	2198-D006-ERS*x*	1.4 [3]	4.0
	2198-D012-ERS*x*		
	2198-D020-ERS*x*		
	2198-D032-ERS*x*	1.7 [3]	
	2198-D057-ERS*x*	2.3 [3]	
Single-axis Inverters	2198-S086-ERS*x*	4.6	4.0
	2198-S130-ERS*x*		
	2198-S160-ERS*x*		
	2198-S263-ERS*x*		
	2198-S312-ERS*x*		
iTRAK Power Supply [4]	2198T-W25K-ER	1.3	2.2
Capacitor Module	2198-CAPMOD-2240	0.1	7.0
Extension Module	2198-CAPMOD-DCBUS-IO	–	–
DC-bus Conditioner Module	2198-DCBUSCOND-RP312	0.1	7.0

(1) For motor-brake current values, see the Kinetix Rotary Motion Specifications Technical Data, publication KNX-TD001.
(2) Inrush current duration is less than 30 ms.
(3) Values are base current per module.
(4) These values represent only the iTRAK power supply. They do not include the iTRAK motor modules that are connected to the iTRAK power supply and also draw current from this 24V control power input. For more information regarding 24V control power requirements, see iTRAK System with TriMax Bearings User Manual, publication 2198T-UM002, or iTRAK 5730 System User Manual, publication 2198T-UM003.

When the Kinetix 5700 inverter catalog number ends in -ERSx, for example 2198-D057-ERSx, the variable (x) indicates that the inverter (using this example) can be 2198-D057-ERS3 or 2198-D057-ERS4.

Circuit Breaker/Fuse Specifications

The Kinetix 5700 drives use internal solid-state motor short-circuit protection and, when protected by suitable branch circuit protection, are rated for use on a circuit capable of delivering up to 200,000 A (fuses) and 65,000 A (circuit breakers).

DC-bus Power Supply UL/CSA Circuit-protection Specifications

DC-bus Power Supply Cat. No.	Input Voltage (three-phase) nom	Bussmann Fuses (1) Cat. No.	Miniature CB (2) Cat. No.	Motor Protection CB, (2) (3) Self Protected CMC Cat. No.	Molded Case CB Cat. No.
2198-P031	195...528V AC	LPJ-15SP (15 A)	1489-M3D250	140M-D8E-C25 140MT-D9E-C25	140G-G6C3-C25
2198-P070		LPJ-40SP (40 A)	N/A	140M-F8E-C45	140G-G6C3-C50
2198-P141		LPJ-70SP (70 A)	N/A	N/A	140G-G6C3-C90
2198-P208		LPJ-100SP (100 A)	N/A	N/A	140G-G6C3-D12

(1) For applications requiring CSA certification, fuses (Bussmann catalog number 170M1760) must be added to the DC link between the two drive clusters when circuit breakers are used for branch circuit protection. The DC bus fuses are not required when AC line fuses are used for branch circuit protection.
(2) These Bulletin 140M/MT Motor Protection Circuit Breakers, when used as self-protected (Type E) devices, and Bulletin 1489 circuit breakers can be used on only WYE power systems (480Y/277V).
(3) The AIC ratings of the Bulletin 140M/MT devices can vary. See publication 140-TD005 or 140M-TD002.

Regenerative Bus Supply UL/CSA Circuit-protection Specifications

Cat. No.	Input Voltage (1) (three-phase) nom	Bussmann Fuses (2) Cat. No.	Mersen Fuses Cat. No.	Miniature CB Cat. No.	Molded Case CB Cat. No.
2198-RP088	324...506V AC rms	LPJ-45SP (45 A)	AJT45 (45 A)	–	140G-G6C3-C60
2198-RP200		LPJ-125SP (125 A)	AJT125 (125 A)	–	140G-J6F3-D15
2198-RP263		LPJ-200SP (200 A)	AJT200 (200 A)	–	140G-K6F3-D30
2198-RP312		LPJ-250SP (250 A)	AJT250 (250 A)	–	140G-K6F3-D40

(1) Applies when DC-bus voltage regulation is enabled. If DC-bus voltage regulation is not enabled, then the input voltage range is 324....528V AC. For more information on these two modes of operation, see the Kinetix 5700 Servo Drives User Manual, publication 2198-UM002.
(2) For applications requiring CSA certification, fuses (Bussmann catalog number 170M1760) must be added to the DC link between the two drive clusters when circuit breakers are used for branch circuit protection. The DC bus fuses are not required when AC line fuses are used for branch circuit protection.

DC-bus Power Supply IEC (non-UL/CSA) Circuit-protection Specifications

DC-bus Power Supply Cat. No.	Input Voltage (three-phase) nom	DIN gG Fuses Amps, max	Miniature CB Cat. No.		Motor Protection CB Cat. No. (1)	Molded Case CB Cat. No.
2198-P031	195...528V AC	16	1489-M3D250	N/A	140M-D8E-C25 140MT-D9E-C25	140G-G6C3-C25
2198-P070		40	N/A	1492-SPM3D400	140M-F8E-C45	140G-G6C3-C50
2198-P141		75	N/A	1492-SPM3D630	140MG-H8E-C60	140G-G6C3-C90
2198-P208		110	N/A	N/A	140MG-H8E-D10	140G-G6C3-D12

(1) The AIC ratings of the Bulletin 140M/MT devices can vary. See publication 140-TD005 or 140M-TD002.

Regenerative Bus Supply IEC (non-UL/CSA) Circuit-protection Specifications

Regenerative Bus Supply Cat. No.	Input Voltage (1) (three-phase) nom	DIN gG Fuses Amps, max	Miniature CB Cat. No.		Motor Protection CB Cat. No.	Molded Case CB Cat. No.
2198-RP088	324...506V AC rms	50	1489-M3C600	1492-SPM3C630	140MG-H8E-C60	140G-G6C3-C60
2198-RP200		125	–	–	140MG-J8E-D15	140G-J6F3-D15
2198-RP263		200	–	–	–	140G-K6F3-D30
2198-RP312		250	–	–	–	140G-K6F3-D40

(1) Applies when DC-bus voltage regulation is enabled. If DC-bus voltage regulation is not enabled, then the input voltage range is 324....528V AC. For more information on these two modes of operation, see the Kinetix 5700 Servo Drives User Manual, publication 2198-UM002.

Technical Specifications - ArmorKinetix System Modules

DC-bus Power Supply Specifications

Attribute	2198-P031	2198-P070	2198-P141	2198-P208
AC input voltage	195…528V rms, three-phase (240/480V nom)			
AC input frequency	47…63 Hz			
Main AC input current [1] 195…528V (rms) three-phase	11.2 A	27.0 A	49.6 A	73.1 A
Max inrush (0…pk)	33.0 A	33.0 A	33.0 A	33.0 A
Peak AC input current 195…528V (rms) three-phase	33.4 A	74.3 A	148.7 A	219.2 A
Line loss ride through	20 ms			
Control power DC input voltage	24V DC ±10%			
Control power DC input current [1] [2]	0.8 A_{DC}		1.9 A_{DC}	
Nominal bus output voltage	276…747V DC			
Continuous output current to bus Three-phase	10.5 A_{DC}	25.5 A_{DC}	46.9 A_{DC}	69.2 A_{DC}
Peak output current to bus Three-phase	31.6 A_{DC}	70.3 A_{DC}	140.8 A_{DC}	207.6 A_{DC}
Peak output current duration [3]	1.0 s	1.0 s	1.0 s	0.1 s
Continuous output power to bus Nom (240V rms, three-phase at 1/2 power) Nom (480V rms, three-phase)	3.5 kW 7.0 kW	8.5 kW 17.0 kW	15.5 kW 31.0 kW	23.0 kW 46.0 kW
Peak output power to bus Nom (240V rms, three-phase at 1/2 power) Nom (480V rms, three-phase)	10.5 kW 21.0 kW	23.0 kW 46.0 kW	46.5 kW 93.0 kW	69.0 kW 138.0 kW
Bus overvoltage 240V, nom AC input 480V, nom AC input	460V DC 832V DC			
Internal shunt resistance	37.5 Ω		13.5 Ω	
Internal shunt power	75 W		200 W	
Shunt on 240V, nom AC input 480V, nom AC input	400V plus 30V x bus regulator capacity/utilization [4] 775V plus 30V x bus regulator capacity/utilization [4]			
Shunt off 240V, nom AC input 480V, nom AC input	390V plus 30V x bus regulator capacity/utilization [4] 765V plus 30V x bus regulator capacity/utilization [4]			
Efficiency	99%			
Internal Capacitance	585 µF	780 µF	1640 µF	2050 µF
Capacitive energy absorption	129 J	172 J	362 J	453 J
Short-circuit current rating	200,000 A (rms) symmetrical			

(1) All modules are limited to 1 power cycle per minute.
(2) For current values when motors include a holding brake and additional information, refer to Control Power Current Specifications on page 13.
(3) Peak output current duration with 10% duty cycle.
(4) The shunt on and shunt off voltages increase during periods of shunting activity to promote sharing of shunt power in multi-axis configurations. Shunt utilization is equivalent to the BusRegulatorCapacity tag in the Studio 5000 Logix Designer application.