

# Meridian ISC, Model M6xx/7xx

DSP-Based Integrated Servo Controllers

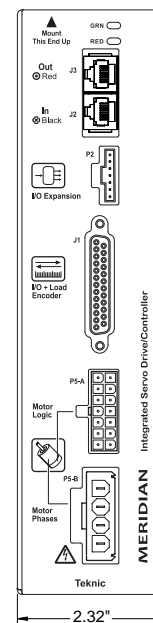
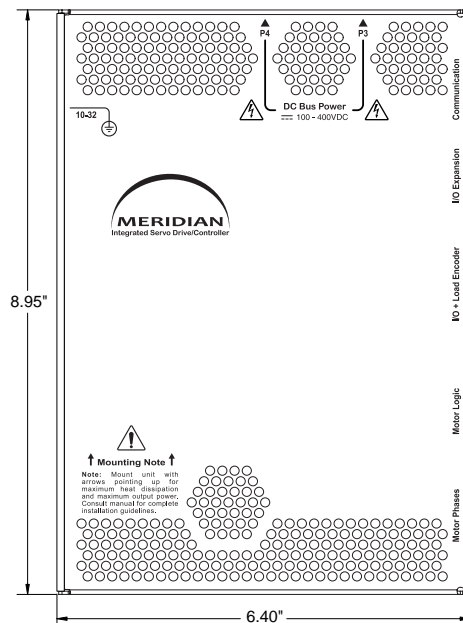


## FEATURES

- Advanced trajectory generation includes multi-speed moves with head and tail ramps, asymmetric accel/decel, etc. with smooth jerk and higher order derivative energy limiting.
- Ultra reliable, high power design with models to 15kW.
- Exceptional servo control, includes: advanced estimators, electronic inertia matching and smooth operating multi-state feed-forward terms.
- Integrated I/O control for high-speed response to input events and high-speed output control based on internal events.
- Built-in user-programmable logic structure allows easy deterministic coordination of internal and external events, I/O and encoder capture/compare.
- G-stop anti-vibration move sculpting cures resonant vibration problems with negligible effect on throughput.
- I/O expansion up to 36 inputs/34 outputs (M7xx) up to 12 inputs/10 outputs (M6xx) using IEX bus.
- System-wide E-stop function smoothes safety integration.
- Universal motor interface drives brush, 3-phase brushless, 2-phase brushless, stepper motors, voice-coils, etc.
- Closed loop vector drive of stepper motors enables reduced cost—yet high-torque—direct-drive applications.
- Full galvanic isolation between communication, I/O signals and servo power/phases minimizes noise problems and speeds electrical and safety integration.
- Digital filtering of input and feedback signals provides high immunity to electrical noise while warning of noisy conditions.
- Daisy chained DC power connectors and internal protection minimizes wiring and safety integration, especially when used with the Amazon Intelligent Power Controller (IPC).

## MODEL LIST

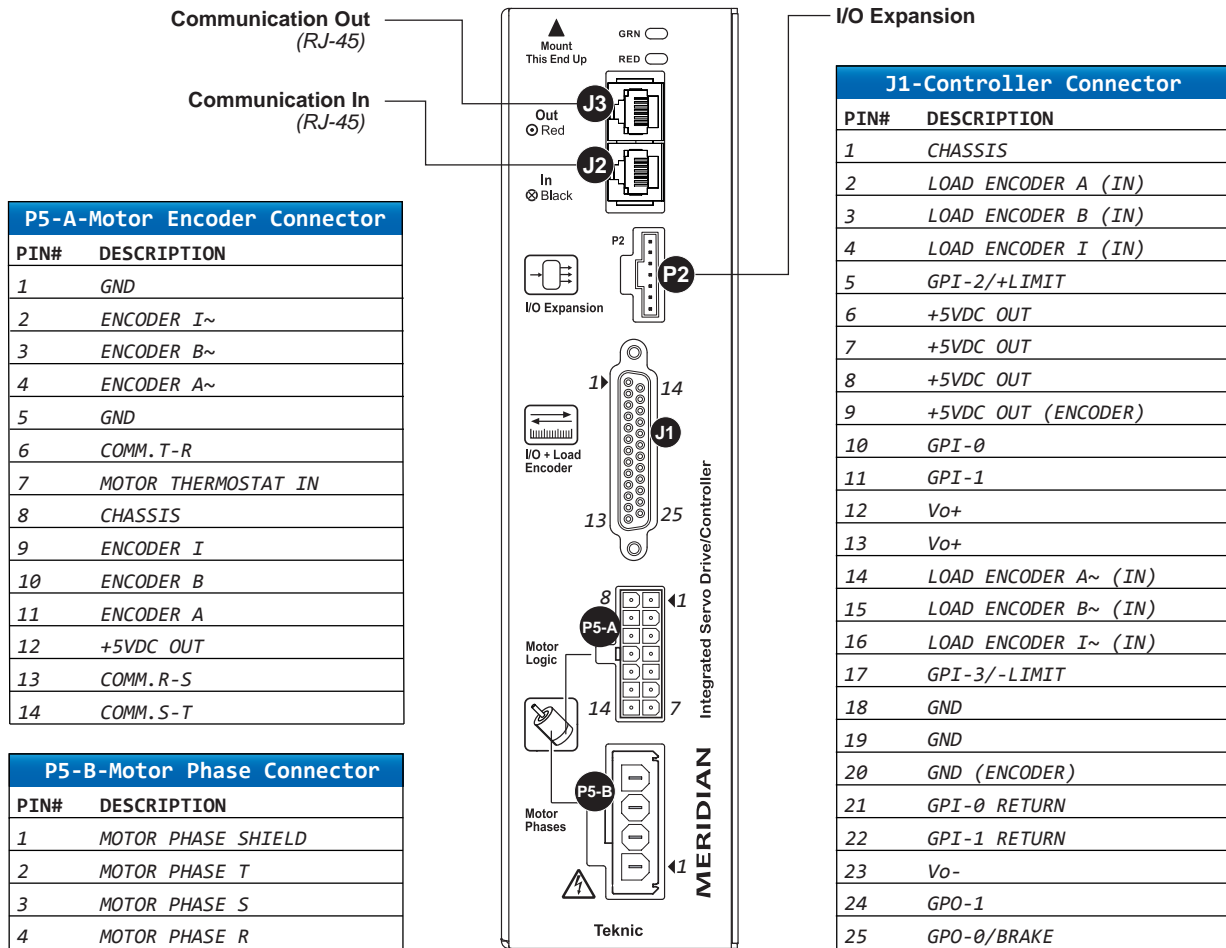
Model	Peak Current [A]	RMS Current [ARMS]	Bus Voltage [Vdc]
ISC-M603-KCx	11	4	100-400
ISC-M623-KCx	13	5	100-400
ISC-M723-RCx	16	7	100-400
ISC-M733-RCx	23	12	100-400
ISC-M753-RCx	30	15	100-400
ISC-M763-RCx	50	20	100-400



## SPECIFICATIONS

GENERAL	Dimensions, in (mm):	8.95 (227) x 6.40 (163) x 2.32 (59)
	Weight, oz (g):	53.5 (1515)
ENVIRONMENTAL	Operating Temperature:	0-40°C
	Humidity:	0-90%, non-condensing
COMPLIANCE	Electrical safety:	EN61010, UL508C
	EMI:	EN 61326
	Machine safety:	EN 954-1, with proper power control
OUTPUT POWER	PWM ripple frequency:	28kHz, center balance vector type
	Conversion efficiency:	>99%
COMPENSATOR	TSPD:	35µS
	Position/velocity control:	Enhanced PIV with proprietary velocity, acceleration and jerk estimators, Inertia Matching Technology (IMT), and Anti-Hunt. Provides velocity, acceleration, jerk and friction feed-forward gains.
	Torque control:	Synchronous vector with DQ decoupling, SmartSaturation, and auto calibration
ENCODER	Primary (Motor) Interface:	Single-ended or differential (user-selectable)
	Secondary (Load) Interface:	Differential
	Max count rate:	24 MHz, quadrature, count rate
	Features:	Bad sequence detection, digital filtering adjustable from 100kHz to 40MHz
MOTOR COMPATIBILITY	Requirements:	Rotary brush, 3-phase brushless, 2-phase brushless, stepper motors, voice-coils, etc.
LIMIT INPUTS	Interface:	TTL with 2kΩ pull-up, digitally filtered
HALL SENSOR INPUTS	Specifications:	5kΩ pull-up to +5VDC
	Features:	Digitally filtered, used to set torque/force vector on initialization (drive may also operate in sensorless mode)
GENERAL PURPOSE INPUTS	Interface:	Two (2) high speed uncommitted 2-pin opto-isolator inputs similar to a solid state relay. GPI-0 can initiate capture of the motor or load encoder position to the count. 4-24V input range.
GENERAL PURPOSE OUTPUTS	Interface:	Two (2) high-current, high speed, opto isolated transistor outputs with active clamping and short circuit & over current protection. Will directly drive 24V inductive loads. Outputs can be triggered under host program control, from encoder counter compare or via user-definable logic functions.
	Output Ratings:	GPO-0: 625mA (15W @ 24V); GPO-1: 208mA (5W @ 24V).
REAL-TIME MONITOR PORT	Features:	Configurable filtering, sync pulse, scaling/zoom, non-volatile
	Output variables:	Position error, actual velocity, commanded velocity, velocity error, commanded torque/force, actual torque/force, SGN velocity, SGN position, measured position, commanded jerk, commanded acceleration, max phase voltage
PROTECTION AND SAFETY FUNCTIONS	Drive protection:	Short circuit (phase-to-phase, phase-to-ground), over-temperature, over voltage, over current, protected for open windings, fused
	Motor protection:	True RMS torque/force limiting, automatic speed-limit, motor jam detection, over temperature
	Mechanical safeguards:	Hardstop detection, limit switch servoing, adjustable tracking error limit and shutdown thresholds, adjustable torque/force limits, adjustable speed limits
	Electrical isolation:	6.0mm (0.236")
INPUT SUPPLY	Input voltage:	130-360VDC (derived from IPC @ 90-250VAC, single or 3-phase)
	Input current:	Up to 5A RMS, 20A peak (application dependant)
COUNTRY OF ORIGIN	Manufactured in:	USA
WARRANTY	Duration:	3-year standard, 5-year optional

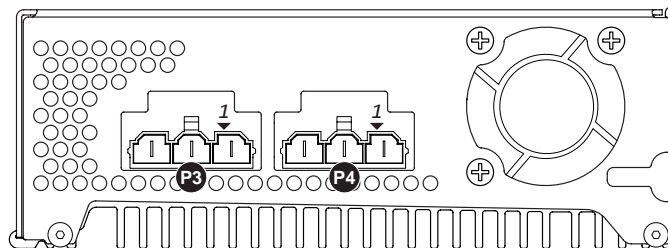
## CONNECTOR DETAIL



ISC-M6xx/7xx

**P3,P4-Power Connector**

PIN#	DESCRIPTION
1	DC BUS IN (V+)
2	DC BUS IN RETURN (V-)
3	CHASSIS/SHIELD GND



ISC-M6xx/7xx  
(end-on view)