



Compax3 Servo Drive System

Catalog USA



Compax3 intelligent servo drive system

Compax3 Family



Global orientation

- ▶ Direct mains operation for global voltages
- ▶ Modular design for the implementation of individual requirements
- ▶ Conform with international and US standards such as CE, UL, cUL
- ▶ Certified safety technology integrated (EN954-1 Cat.3)
 - ✓ Low development and wiring overhead
- ▶ Integrated mains filtering

Programming / control technology

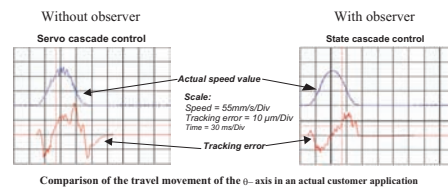
- ▶ **IEC61131-3: International standardized programming languages**
 - ✓ Program may be written in reusable self-contained modules
 - ✓ Multiple languages cover all major controller programming methodologies for unprecedented application flexibility
- ▶ **PLCopen function modules**
- ▶ **Available in a multi-axis version (PLmC)**

Software

- ▶ **One tool for all: “Compax3 ServoManager“**
 - ✓ Commissioning, configuration and setup, motor control, programming, tuning and maintenance
 - ✓ Integrated 4-channel oscilloscope for signal analysis

Control technology

- ▶ **Fast control loops**
 - ✓ Current: 62.5µs
 - ✓ Velocity: 125µs
 - ✓ Position: 125µs
- ▶ **Observer technology**
 - ✓ Internal calculation that increases controller performance



- ▶ **Jerk-limited setpoint generation (s-curve acceleration)**
 - ✓ Guarantees a longer service life of the mechanical components
- ▶ **Automatic determination of the load moment of inertia, motor ratings and of the motor position feedback**
 - ✓ Easy setup and configuration

Communication

- ▶ Industry standard fieldbus options
- ▶ Ethernet for the integration into company networks and for remote diagnostics
- ▶ Internal digital and analog input/outputs (digital I/O can be extended as an option)





10kW supply with three M150D6 axis units = 7.87"

Compax3M device	Current**(A _{rms})		DC Bus Voltage
	I _{cont}	I _{peak}	
M050D6	4	8	325 — 679 VDC**
M100D6	8	16	
M150D6	12.5	25	
M300D6*	24	48	
AC supply module	Output power (kW)		AC Voltage
	P _{cont}	P _{peak}	
C3MP10D6	10	20	3 * 240/480 VAC
C3MP20D6*	20	40	3 * 240/480 VAC

* To be released fall of 2008

**Current shown for 480VAC (679VDC bus) supply. Check manual for other voltages.

Standard Features

- * Common DC Bus
- * Sharing of a braking resistor across bus
- * Sharing of a single AC mains filter
- * Extremely slim design; shallow depth
- * Advanced safety options
- * USB Communications

Compax3M Safety Technology

- ▶ State-of-art safety technology (EN ISO13849)
- ▶ Comes standard with Cat. 3 Safety
- ▶ Simple and cost-effective wiring
- ▶ Simple wiring avoids costly mistakes
- ▶ Safety options (order as special):
 - ✓ SS1 (safe stop 1) Category 3
 - ✓ STO (safe torque off) Category 4
 - ✓ SLS (safety limited speed)
 - ✓ SOS (safe operating speed)
 - ✓ ST2 (safe stop 2)
 - ✓ SLI (safely limited increment)
 - ✓ SLP (safely limited position)
 - ✓ SDI (safe direction)
 - ✓ Safe Input/Output signals
 - ✓ SSM (safe speed monitoring)

Compax3 Part Numbering System

S025 V2	2.5 A (rms) / 120 - 240 VAC
S063 V2	6.3 A (rms) / 120 - 240 VAC
S100 V2	10 A (rms) / 120 - 240 VAC 3φ
S150 V2	15 A (rms) / 120 - 240 VAC 3φ
S038 V4	3.8 A (rms) / 208 - 480 VAC 3φ
S075 V4	7.5 A (rms) / 208 - 480 VAC 3φ
S150 V4	15 A (rms) / 208 - 480 VAC 3φ
S300 V4	30 A (rms) / 208 - 480 VAC 3φ
H050 V4	50 A (rms) / 400 - 480 VAC 3φ
H090 V4	90 A (rms) / 400 - 480 VAC 3φ
H125 V4	125 A (rms) / 400 - 480 VAC 3φ
H155 V4	155 A (rms) / 400 - 480 VAC 3φ
M050 D6	4 A (rms) / 208 - 480 VAC 3φ
M010 D6	8 A (rms) / 208 - 480 VAC 3φ
M150 D6	12.5 A (rms) / 208 - 480 VAC 3φ
M300 D6*	24 A (rms) / 208 - 480 VAC 3φ

F10	Resolver
F11	Absolute encoder/SinCos®/Stegmann/Hiperface
F12	Quadrature encoder/ SineCosine linear/Endat 2.1

M00	No options
M10	Additional I/O with HEDA
M11	HEDA
M12	Additional I/O

I10 T10	Drive only
I11 T11	Basic positioning via digital inputs (requires M00)
I12 T11	Advanced positioning via inputs and RS232/485 (requires M12)
I20 T11	Positioning via Profibus DP
I21 T11	Positioning via CANopen
I22 T11	Positioning via DeviceNet
I30 T11	Positioning/Interpolation via EPL
I11 T30	IEC with digital I/O
I20 T30	IEC with Profibus DP
I21 T30	IEC with CANopen
I22 T3	IEC with DeviceNet
I30 T30	IEC with EPL
I11 T40	IEC Cam control w/ digital I/O
I20 T40	IEC Cam control w/ Profibus DP
I21 T40	IEC Cam control w/ CANopen
I22 T40	IEC Cam control w/ DeviceNet
I30 T40	IEC Cam control w/EPL

Compax3 Accessories

Part Number Product Description

Power Supply (required for C3M, not used for C3S/H)

C3MP10USBM00	10kW power supply for Compax3M axis units; 240/480 3-phase
C3MP20USBM00*	20kW power supply for Compax3M axis units; 240/480 3-phase

Breakout Modules

VM15-PM	15-pin breakout module and 2' cable to Compax3 feedback or analog encoder
VM15-PF	15-pin breakout module and 2' cable to Compax3 digital I/O
VM15-PM-05	15-pin breakout module and 5' cable to Compax3 feedback or analog encoder
VM15-PF-05	15-pin breakout module and 5' cable to Compax3 digital I/O
VM15-PM-10	15-pin breakout module and 10' cable to Compax3 feedback or analog encoder
VM15-PF-10	15-pin breakout module and 10' cable to Compax3 digital I/O

Connector Kits

ZBH02/01	Replacement connector kit for Compax3 S025 V2, S063 V2 products
ZBH02/02	Replacement connector kit for Compax3 S038 V4, S075 V4, S150 V4 products
ZBH02/03	Replacement connector kit for Compax3 S300 V4 products
ZBH04/01	Replacement connector kit for Compax3 M050D6, M100D6, M150D6
ZBH04/02	Replacement connector kit for Compax3 M300D6
ZBH04/03	Replacement connector kit for Compax3 MP10D6 and MP20D6 (power supply)

Communication Cable

SSK1/02	8' cable, RS232 serial communication cable (PC to Compax3)
SSK32/20	Communications dongle for C3Hxxx; one unit ships with drive - replacement only
VBK17/01	X10 to X10 jumper - replacement only for C3H

Braking Resistors

BRM08/01	Braking resistor for Compax3 S025, S038 units (60 W continuous, 250 W peak)
BRM05/01	Braking resistor for Compax3 S063, S075 units (180 W continuous, 2300 W peak)
BRM05/02	Braking resistor for Compax3 S150 unit (570 W continuous, 6900 W peak)
BRM04/01	Braking resistor for Compax3 S300 units (570 W continuous, 6900 W peak)
BRM04/02	Braking resistor for Compax3 S300 units (740 W continuous, 8900 W peak)
BRM04/03	Braking resistor for Compax3 S300, MP20D6 units (1500 W continuous, 18000 W peak)
BRM09/01	Braking resistor for Compax3 S100 units (570 W continuous, 6900 W peak)
BRM10/01	Braking resistor for Compax3 S150V4 unit (570 W continuous, 6900 W peak)
BRM11/01	Braking resistor for Compax3 H0xx units (3500 W continuous, 19.3 kW peak)
BRM12/01	Braking resistor for Compax3 H1xx units (4500 W continuous, 24.8 kW peak)
BRM13/01	Braking resistor for Compax3 MP10D6 (500 W cont)
BRM14/01	Braking resistor for Compax3 MP20D6 (500 W cont, two 15ohm in series)

EMC Accessories

MDR01/04	Compax3 motor output filter (rated up to 6.3 A continuous current motors)
MDR01/01	Compax3 motor output filter (rated up to 16 A continuous current motors)
MDR01/02	Compax3 motor output filter (rated up to 30 A continuous current motors)
NFI01/01	Mains Filter* for Compax3 S025, S063 units
NFI01/02	Mains Filter* for Compax3 S038, S075, S150 units
NFI01/03	Mains Filter* for Compax3 S300 units
NFI02/01	Mains Filter* for Compax3, 50A
NFI02/02	Mains Filter* for Compax3, 90A
NFI02/03	Mains Filter* for Compax3, 125A & 155A
NFI03/01	Mains Filter* for Compax3, 25A for C3MP10D6 power supply
NFI03/02	Mains Filter* for Compax3, 25A for C3MP20D6 power supply

Fieldbus & HEDA

Accessories

71-028656-xx	Shielded ETHERNET Powerlink cable (from ACR to Compax3/Aries)
71-017635-01	5' cable, HEDA bus cable
BUS07/01	HEDA bus termination plug AND termination for C3M Axis module communication bus
BUS08/01	Pro.bus cable connector with integral bus terminal switch (plug only)
BUS10/01	CANopen cable connector with integral bus terminal switch (plug only)

Compax3 I10 T10

Drive Command Cables

71-021625-XX	Compax3 I10 T10 drive-to-6K analog command cable (torque, velocity mode only)
71-021108-XX	Compax3 I10 T10 drive-to-ACR analog command cable (torque, velocity mode only)

Compax3 Feedback Cables

Resolver	F-2B1-xx
SinCos/Stegman/Hiperface	F-2B1-xx
Encoder	F-2C1-xx

Compax3 Power Cables

240VAC <6Arms	P-1A1-xx
240/480VAC <20Arms	P-3B1-xx
240/480VAC 20A < I < 30Arms	P-4B1-xx
240/480VAC 30A < I < 50Arms	P-6B2-xx
>50Arms	Custom



Standard Features

- * Power range of 1kW ... 75kW
- * 8 digital inputs, 4 digital outputs
- * RS232 / RS485 - interfaces
- * 2 analog inputs (+/-10V, 14 bits)
- * 2 analog outputs (+/-10V, 8 bits)
- * Encoder input or output
- * **Motors supported**
 - ✓ Synchronous servo motors
 - ✓ Asynchronous motors
 - ✓ Linear motors
 - ✓ Torque motors
- * **Position sensing at the motor shaft via:**
 - ✓ Resolver
 - ✓ Rotary/linear encoder
 - ✓ Sine-cosine feedback
 - ✓ Hiperface interface
 - ✓ EnDat 2.1 interface
 - ✓ Compatible with most available feedback systems

* Support for SSI feedback

Extensions

- * Ethernet Powerlink (EPL) - Lighting-fast Ethernet-based motion bus
- * Scalable technology and control functions
- * Integrated or external controls: C3 powerPLmC for combined machine logic and motion control functionality

Functions (summary)

- * Programmable according to IEC61131-3
- * Reg-related positioning, electronic gearing, dynamic positioning (motion superimposition) and torque-force control
- * Cam – modular, with coupling and decoupling functions, cam switching mechanism

Technologies

- * **T10:** Step/Direction and Analog Command Input
- * **T11:** Positioning indexer
- * **T30:** IEC61131-3 Positioning with function modules according to PLCopen
- * **T40:** IEC61131-3 Positioning with Cam function modules

Compax3 Power Range

Compax3 device	Current A _{RMS}		Supply voltage
	I _{cont}	I _{peak} (<5s)	
S025V2	2.5	5.5	1 * 230/240VAC (80-253VAC / 50-60Hz)
S063V2	6.3	12.6	
S100V2	10	20	3 * 230/240VAC (80-253VAC / 50-60Hz)
S150V2	15	30	
S038V4*	3.8	7.5	3 * 400/480VAC (80-528VAC / 50-60Hz)
S075V4*	6.5	15	
S150V4*	13.9	30	
S300V4*	30	60	
H050V4*	43	64.5	3 * 400/480VAC (350-528VAC / 50-60Hz)
H090V4*	85	127.5	
H125V4*	110	165	
H155V4*	132	198	

*Current shown for 480VAC supply voltage. Check manual for current output at other voltages

powerPLmC Machine Controller

C3 powerPLmC - C10**
- integrated -
into the servo drive



C3 powerPLmC - E20
- standalone -
without servo drive

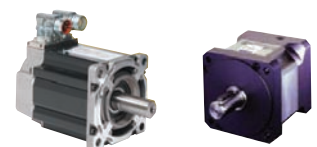
- ▶ 32-bit RISC processor:
< 100 µs for 1000 lcommands
- ▶ Programmable based on IEC61131-3 / PLCopen
- ▶ Simple integration of the servo axes due to Parker's Drive Interface
- ▶ Integrated motion control functions for dynamic, coordinated control of 32+ axes
- ▶ CoDeSys professional development tool
- ▶ Full machine logic capabilities
- ▶ Additional system components offered by Parker:

Parker offers HMI solutions for any application from simple push button replacement through sophisticated networking, multimedia and data logging requirements. Products range from entry level embedded displays through full Windows based Industrial PC solutions.



PIO: Parker digital and analog inputs / outputs – modular extensions

Parker offers a broad family of motors with unparalleled performance, a torque range of 1.2 in-lbs to 4000 in-lbs and complete customization capabilities. For higher torque requirements, Parker's Stealth gearheads are the perfect solution.



**Available as a custom product



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