

**HELIX**TM
Integrated Programming System**Easy to learn. Easy to use.**

The HELIX-TR programming system, with integrated tray handling, provides hands-free programming of programmable semiconductor devices. Precision automated handling capability, combined with proven programming technology, has expanded our automated system product line to offer an alternative solution for medium volume and small-part production programming.

**When flexibility matters.**

With 23,000 devices supported on the programming sites, the Helix-TR is the most flexible, compact programming handler on the market. The precision tray system is designed to handle a two-tray capacity while integrated software accounts and handles reject parts. The trays are fully contained and automated which virtually eliminates the chance of damaged leads and passing of blank parts through to your production line. The tray handling system is designed to be highly reliable while offering throughputs of up to 800 DPH.

**Cross-platform with ease.**

The Helix-TR is designed to support the widest range of packages with only minimal nozzle, socket module and pressure plate exchange. From the largest 240 QFP down to the smallest MSOP 8, you get support for the newest packaging trends in the industry.

**BPM MICROSYSTEMS**

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PICK & PLACE SYSTEM

Handler Throughput:	800 DPH
Component Processing Range:	MSOP 8* up to QFP 240
Device Carrier Supported:	Standard JEDEC trays only
Device Alignment:	Mechanical Nozzle Alignment by Device Body
Placement Force:	30 grams (compliant spring force of the Z axis)
Dimensions:	length 95 cm (37"), width 71 cm (28"), and height 64 cm (25")
Weight:	93 kg (205 lbs.)
Shipping Weight:	195 kg (429 lbs)
Shipping Dimensions:	119 cm (46.9"), width 125 cm (49.2"), and height 102 cm (40.2") (crate size)
Self Test:	Initialization and homing of X, Y, Z, and θ , computer memory and CPU at startup

POSITIONING SYSTEM

X Drive System:	high-performance stepper motor driven precision belt
X Axis Resolution:	0.004 mm (0.0002")
X Axis Repeatability:	± 0.02 mm (± 0.0008 ")
Y Axis Drive System:	precision lead screw
Y Axis Resolution:	0.004 mm (0.0002")
Y Axis Repeatability:	± 0.02 mm (± 0.0008 ")
Tray Y Axis Drive System:	high-performance stepper motor driven precision belt
Tray Y Axis Resolution:	0.004 mm (0.0002")
Tray Y Axis Repeatability:	± 0.02 mm (± 0.0008 ")
Z Drive System:	high-performance stepper motor driven precision belt
Theta Drive System:	precision stepper motor-driven direct drive assembly
Theta Axis Resolution:	0.014°
Theta Axis Repeatability:	± 0.02 "

DEVICE CENTERING SYSTEM

Type:	Specially machined nozzles to align device during pick by the device body and not contacts
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SOFTWARE

File Type:	binary, Intel, JEDEC, Motorola, POF, straight hex, hex-space, Tekhex, Extended Tekhex, and others; automatic file type recognition
Device Commands:	blank check, sum, compare, program, test, verify, secure, continuity, ID check, erase
Features:	graphic display or job status, JobMaster™ control software, data editor, revision history, session logging, on-line help, device and algorithm information

SYSTEM REQUIREMENTS

Air Pressure:	0.5 MPa (73 psi)
Air Flow:	50 L/min (1.8 SCFM)
Operational Temperature:	13° - 32°C (55° - 90° F)
Relative Humidity:	30-80%
Minimum Recommended Floor Space:	length 180 cm (71") and width 115 cm (45") (with tooling installed and side table)
Input Line Voltage:	100-130/200-240 VAC
Input Line Frequency:	50/60 Hz
Power Consumption:	800 VA

PROGRAMMING SYSTEM

Architecture:	Concurrent, independent universal programmer at each site
Devices Supported:	Including, but not limited to Antifuse, Low Voltage, PROM, EPROM, EEPROM, Flash EEPROM, Microcontrollers, SPLD, CPLD, FPGA
Technologies Supported:	TTL, CMOS, ECL, BiCMOS, Flash, EPROM, EEPROM, fuse, anti-fuse, (including FPGAs)
Included System Controller:	High-grade Industrial Pentium PC, LCD monitor, keyboard and mouse
Calibration:	Automatic self-calibration
Diagnostics:	pin continuity test, RAM, ROM, CPU, pin drivers, power supply, communications, cable, calibration, timing, ADC, DAC, actuator, leakage current
Memory:	512MB per site
Pin Controllers:	one CPU with hardware accelerator per site
Programming Sites:	2 sites; 1 to 4 sockets per site depending on socket module selected

PIN DRIVERS

Quantity:	240 per site
Analog Slew rate:	0.3 to 25V/ μ s
VPP Range:	0-25V
Ipp Range:	0-70mA continuous, 250mA peak
Vcc Range:	0-12V
Icc Range:	0-1A
Very low voltage:	to 1.5V (Vdd)
Rise Time:	4ns
Overshoot:	none
Clocks:	continuously variable 1 MHz to 30 MHz
Protection:	overcurrent shutdown, power failure shutdown
Independence:	pin drivers and waveform generators are fully independent and concurrent on each site

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* Subject to tray availability

Helix-TR-10 EN-0906

