

# **Motorcon Overview**





Motorcon INC. is comprised of members from the ITRI (Industrial Technology Research Institute) professional research team that comes with years of experience in CNC technology research and development, including high accuracy motion control technology, high power control technology, NC controller technology, high accuracy machine design technology, mechatronics technology and machine vision technology.

Under modern automation technology development process, the industry continues integration of the latest technologies to have an explosive growth for the production efficiency and extend from the past machinery automation to factory automation. The recent advances in semiconductor technology prompts PC and network capabilities to be widely used in the industrial automation industry, making the industry move toward the IoT, intelligent and integrated development.

Motocon INC., basing on the technical service industry, provides the customers with a variety of professional services and products to meet the application requirements of factory automation and machine automation. We expect to build the most efficient automated systems with customers.





## **Motorcon Automation Solution**

Motorcon solutions for factory automation and machine automation industry include robot system solutions, motion control solutions, machine vision solutions, and customized design solutions. For robot system solutions, we provide customized robot arm design services, standard six-axis vertical articulated robot arm and high response machine arm controller. For motion control solutions, we provide customized design services for various types of motion control card, standard four-axis motion control card and I/O expansion card. For machine vision solutions, we will provide cameras, lens, light, vision card, image analysis software and industrial computer. For customized design, we provide software design services, hardware PCB design services and FPGA/MCU firmware design services. Since Motorcon's research and development team has been dedicated in the automation industry for many years, in addition to offer those components mentioned above, we also offer customized fixtures designed to assist customers to use the Motorcon products to compose automated production equipments, providing customers with the most robust system solutions.



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Optional Peripherals



# **Robot System Solution**

Motorcon provides a total solution of industrial robot system, including robot arm design service, high response robot arm, robot controller, and robot system integration service. The Motorcon robot arm design service includes vertical articulated robot, SCARA robot, delta robot, and the other special types of robot.

The Motorcon robot controller supports 3~6 axes vertical articulated robot, SCARA robot, delta robot control, including PTP, Line, Arc motion control function. In addition the robot controller uses real-time control technology to ensure multi-axis contouring accuracy and command resolution of +/-0.001mm and +/-0.001°.

Motorcon's high response robot, composed of high quality harmonic driver and dedicated wire, ensures the products to have high reliability, high accuracy, high load, high intuitive operation, high security and high expandability. The products can completely replace manpower for taking, handling, cutting, screw locking, assembling, etc..

### Robot ARM



A Series Robot

### Robot ARM Design Service







Vertical Articulated Robot

### SCARA Robot Delta Robot

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### Robot Controller Solution



### Multi-axis robot arm control

- Support 3~6 axes vertical articulated robot, SCARA robot, delta robot control, including PTP, Line, Arc motion control function
- Unique singular point estimate method to prevent machines from performing unexpected actions
- Provide serial communication servo control system

### User friendly HMI system

• Easy to learn, easy to use and easy to maintain

Provide on-line command function help

- Support USB interface, each piece of data is Max.250MB
- Support CAD/CAM data input, can realize complex trajectories easily

### **High-precision control**

Using real-time control to ensure multi-axis contouring accuracy

- Command resolution: +/-0.001mm & +/-0.001°
- Provide serial communication servo control system and maximum speed is 5000rpm with 20-bit encoder input

### System expansion

- Support to communicate with other control system, like PLC and machine vision systems. (by Ethernet)
- Can install and use the motion card, vision card, A/D D/A card, and I/O card in the controller

Optional

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# **High Performance Robot Controller**

Motorcon provide several types of robot controller, including two hardware control and three software control. The software control is similar to HMI that can provide the same operating habit to users. The motion control system of our robot controller has pulse command type and serial communication type.

### Robot Controller Hardware

- Pulse Command Type
- Serial Communication Type

### Robot Controller Software (Standard Version)

- iRX6 =>For Vertical Articulated Robot
- iRS4 => For SCARA Robot
- iRD3 => For Delta Robot

# ABS Encoder Expansion Board 11~.16 Motor Driver Servo Expansion Board SCSI 68-pin Cable SCSI 36-pin Cable DB-9 Cable RS-485 Cable I/O Expansion Board Automation Panel Solutions

### Serial Communication Type



### Motorcon Robot Controller Scalability

The Motorcon robot controller, featuring a small size, makes machines more flexible on assembling, and at the same time, can be expanded with a high-performance motion card, I/O card and vision card. When executing self-developed programs, the controller ensures real-time robot motion control, and takes expandability and stability into consideration.





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### Pulse Command Type



# **Robot Controller Software**

Motorcon's robot controller can be used in various types of robots, including vertical articulated type, SCARA type and Delta type.

Furthermore, this robot controller uses real-time control architecture that ensures precise trajectory, continuous and smooth speed and provides fully digital servo drive serial interface, which can reach a high speed, high resolution, high reliability of motion control (20-bit/5000rpm). With the HMI intuitive operation design, users can be trained in a very short period of time to operate robots. A highperformance robot controller has scalability, can be integrated with vision cards, I/O cards, A/D card, D/A functional expansion card, etc..

### Control Function



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# **User-Friendly HMI**

Motorcon's robot control HMI system has the characteristics that are easy to learn, easy to use and easy to maintain. It can switch screen automatically by different types of teaching pendant, support USB interfaces (max. 250 MB data for each piece), support CAD/CAM data input that can realize complex trajectories easily, and provide on-line command function help.

### Edit Mode



Simple programming interface allows users to edit robot motion paths

### Edit Mode (for TP-84M)



Simple programming interface allows users to edit robot motion paths

### Online Help



Provide online FAQ and help to assist users writing programs

### **D-H & Limit Setting**



Robot D-H parameter and servo limit setting

### **Teaching Mode**



Include three motion modes and two coordinate modes for users to save information without hassles

### **Teaching Mode (for TP-84M)**



Include three motion modes and two coordinate modes for users to save information without hassles

### I/O Status



Visualize the operation status of all 64 inputs and 64 outputs

### Mill Americana (LMP) 0 Mill Americana (LMP) 0 Mill Americana (LMP) 0 Mill Americana (LMP) 0

**Tool & Work Coordinates** 



Tool Coordinates and Work Coordinates settings

### **Automatic Mode**



Run the programmed commands automatically. The cyclic operation mode is also supported.

### Automatic Mode (for TP-84M)



Run the programmed commands automatically. The cyclic operation mode is also supported.

### **System Alarm**



Record alarm logs to understand the robot operation status

### **Multi-Language**



Support multi-language, including English, Chinese, Japanese, Deutsch and Korean

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# **Teaching Pendant Solution**

### Robot-TP-84M

- 8.4" easy-to-use control terminal
  - » 350 nits luminance control terminal with touchscreen to present its graphical user interface.
  - » Resolution: 800 x 600
  - » 6-meter long all-in-one cable allows easy installation
  - » Ergonomic body design, easy to operate
- Durable construction
  - » Completely dust and splash proof (IP64) design
  - » 1 meter drop resistance
  - » 0°C~50°C extended operating temperature

### Optimized layouts

 Safety functions, including "Emergency stop", "3-position deadman switch", "mode select key switch"



Automation Machine Control



Robot-TP-84M

### Equally suitable for right- or left-handed operation





### Ordering Information

Part NO	Description
Robot-TP-84M/K-ML-R10	8.4" 350cd/m <sup>2</sup> SVGA TFT LCD teach pendant with touchscreen, key switch, 3-position dead-man switch, emergency button, 31-pin military connector, R10
Robot-TP-84M/K-R10	8.4" 350cd/m <sup>2</sup> SVGA TFT LCD teach pendant with touchscreen, key switch, 3-position dead-man switch, emergency button, R10
Robot-TP-84M-R10	8.4" 350cd/m <sup>2</sup> SVGA TFT LCD teach pendant with touchscreen, emergency button, R10

Optional Peripherals

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# **Robot Arm Solution**

### **7A6 Robot Specifications**

Model		7A6
P-point Reach (max.)*		700 mm
P-point Reach (min.	)	350 mm
Payload		7 kg
Net Weight		49 kg
Robot Footprint		250 mm x 250 mm
Second Arm		350 mm
Maximum Composite Speed		6165 mm/s
Point-to-point Cycle Time**		0.7 sec
Position Repeatability		±0.03 mm
	J4, J5	14.0 Nm
Allowable Torque	J6	5.8 Nm
Allowable Inertia	J4, J5	0.42 kg-m <sup>2</sup>
Allowable mertia	J6	0.1 kg-m <sup>2</sup>
	J1	340° (+170°~ -170°)
	J2	195° (+135° ~ -60°)
Motion Angle	J3	210° (+170°~ -40°)
wotion Angle	J4	360° (+180° ~ -180°)
	J5	200° (+100° ~ -100°)
	J6	720° (+360°~ -360°)



### Dimensions (mm)





## **Robot Application Examples**

Motorcon provides mechanical arm for industrial used to assist customers build factory automation systems. Through expansion and connectivity provided by Motrocon Robot controller, you can have a complex tasks done, including automatic locking screws, polished, deburring, welding, spraying devices, loading and unloading, milling ... etc. In addition, six-axis vertical joints robot arm can use its six-degree of mechanism, becomes a high flexible test platform or measurement platform.



Loading/Unloading



Optional Peripherals

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# **Motion Control Solution**

Motorcon offers two kinds of motion control solutions: pulse output type and serial communication type. The pulse output type control card "PCI-SN300" can control four stepper/servo motors simultaneously with maximum pulse output frequency up to 6.5Mpps. In addition to the servo motor necessary I/O control points, "PCI-SN300" also offers additional 8 programmable I/O points. The serial communication control solution is based on standard CAT5e network cable and industrial-grade Ethernet protocol. This solution provides high speed, high resolution, simple wiring and precise synchronization.

### Pulse Type Motion Control Solution



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# MDH-1000

4-axis servo + 4-axis step motor controller

### **MDH-1000 Hardware Introduction**

Vola Con 1 secret Con 2 secret Vola Equit Accord Con 5 Con 6 D Sec Con 7 Secret The MDH-1000 is a fanless embedded system integrating industrial computer, motion control card, servo wiring board and I/O wiring board which has multi motion control and multi I/O control functions. The advantages include small size, easy wiring and installation.

The MDH-1000 equips Intel® Celeron® processor, formally code named Bay Trial, supporting up to four cores and clock speeds of 2.41 GHz. Its peripheral interfaces include four RS-232 serial ports (two of four can be configured as RS-422/485), three USB 2.0 ports, VGA or LVDS display output. Furthermore, it is designed with four USB 3.0 ports, two Ethernet ports, and contains PCIe Mini expansion slot for installing analog video capture card or I/O terminal board for connecting industrial cameras for machine vision applications.

Regarding the motor control of the MDH-1000, it offers 8 axes of pulse type motor control interfaces supporting controllable dual mode, 4-axis servo/step motor and 4-axis step motor. It also offers 4-axis A/B phase encoder input with 32-bit counter.

Besides, the MDH-1000 has 8-axis machine travel limit protection signal and home signal input interfaces. The MDH-1000 not only have exclusive servo control I/O signal interfaces, but also expand 16 photocoupler-isolated I/O interfaces additionally.

For motion control function, the MDH-1000 supports 8-axis pulse command including pulse/direction, A/B phase, cw/ccw pulse output mode with 5Mpps maximum pulse frequency, Trapezium acceleration/deceleration, homing mode, point to point motion command, etc. and more. Each axis operates independently.

### Features

- Integrates industrial computer, motion control card, servo wiring board and I/O wiring board. The advantages include small size, easy wiring and installation.
- Equips the latest Intel® Celeron® processor, formally code named Bay Trial, supporting up to four cores and clock speeds of 2.41 GHz.
- Offers 8 axes of pulse type motor control interfaces supporting dual mode; 4-axis servo/step motor and 4-axis step motor, controllable.
- Pulse output support A/B Phase, Pulse/Dir, CW/CCW mode.
- 5Mpps max. pulse output frequency, 32-bit counter of encoder input (A/B/Z), 4 times of multiple frequency support.
- Support point-to-point motion command, each axis operates independently.
- Trapezium acceleration/deceleration command.
- Machine travel limit protection and home mode.
- The servo motor is controlled through the exclusive I/O interfaces for connecting driver and travel limit switch.
- 16 photocoupler-isolated I/O interfaces, 0~24V allowable.
- Fanless design to strengthen the ability of anti-noise interference for industrial automation environment.
- Provides Ethernet and USB 3.0 interfaces for connecting digital industrial cameras.
- Contains PCIe Mini expansion slot for installing analog video capture card, LAN card, CANBus card, etc.
- Operates in Microsoft® Windows 7 32-bit OS, provides DLL library, and supports software development tool like VC++/VB/Labview, etc.
- Multi motion control function suitable for position control, machine vision, robot arm, automatic assembly line, etc.

### Specifications

### Industrial Computer

CPU	Intel® Celeron® processor J1900 (quad-core, 2GHz, 10W)
Graphics Card	Intel® HD graphics
Memory	On-board DDR3 2GB memory
HDD	PCIe Mini DOM 2.5" SATA HDD, mSATA DOM
USB	4 x USB 3.0 2 x USB 2.0
LAN	2 x Intel® i210 ethernet controller (RJ-45)
RS-232	4 x DB-9 (two for RS-422/RS485, selectable)
Display	1 x VGA 1 x LVDS

### Motion Control Module 1

Mode	Dual mode: servo or step motor
Axes	4
Pulse Output	5Mpps max. differential output Support A/B Phase, CW/CCW, Pulse/Dir mode
Encoder Input	A/B/Z photocoupler-isolated signal, 32-bit, 4 times multiple frequency
Input	Servo_Alm (servo alarm), Servo_INP (in position) MRLimit (right limit), MLLimit (left limit), MORG (home)
Output	Servo_On (servo on), Servo_AlmClear (sevro alarm clear), Servo_CL (driver's command & servo error clear)
Connector	4 x DB-26 (for servo motor)

Motion Control Module 2	
Mode	Step motor
Axes	4
Pulse Output	5Mpps max. differential output Support A/B Phase, CW/CCW, Pulse/Dir mode
Input	MRLimit (right limit), MLLimit (left limit), MORG (home)
Output	Servo_On (sevro on)
Connector	4 x DB-9 (for step motor)
I/O Module	
Input	16 x photocoupler-isolated (3000 VBMS isolated) Voltage: 0V ~ 24V Operating voltage: 5V up
Output	16 x photocoupler-isolated open collector (3000 VBMS isolated) Max. voltage allowed: 24V Max. current: 90mA
Appearance	
Dimensions	301 mm x 219 mm x 60 mm (WxDxH)
Mechanism	Fanless design
Others	
Operating System	Microsoft® Windows 7 (32-bit)
Software Support	DLL library, support software development tool like: VC++/ VB/Labview, etc.
Power	9V ~ 30V DC
Operating Temperature	0°C ~ +65°C



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### **Industry Applications**



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### Dimensions (Unit: mm)



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# **TB-EM16**



### **Specifications**

### Communication Interface

nterface	RS-485
Protocol	MODBUS / RTU
ransmission Rate	115.2Kbps, Max. tranmission distance 1000 m
Connector	DB-9 Male
Aax. series connection	16

### Input

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Numbers	16 photocoupler-isolated inputs
Isolated voltage	3000 VRMS
Voltage range	0~36V, Operating voltage: 5V u
Connector	3.5mm Terminal Block

### Output

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Output	16 photocoupler-isolated Open Collector outputs
Isolated voltage	2500 VRMS
Loading capacity	Max. voltage allow: 36V , Max electric current: 90
Connector	3.5mm Terminal Block

### Others

Dimensions (WxHxD)	110mm x 107mm x 25mm
Power	9~36Vdc
Operating Temperature	0°C ~ +70°C

### Application



### **Features**

Isolated 16 I 16O expansion board

- Adopt MODBUS/RTU communication protocol
- RS-485 communication interface, Even parity check bit, 1 stop bit
- 115.2Kbps data transmission rate. Max. transmission distance: 1000 m
- Up to 16 series connection
- Inputs
- 16 photocoupler-isolated inputs
- Isolated voltage: 3000VRMS
- Support SINK (NPN) & SOURCE (PNP) mode
- 0~36Vdc input, operating voltage: 5V up

### Outputs

- 16 photocoupler-isolated Open Collector outputs
- Isolated voltage: 2500VRMS
- Support SINK(NPN) mode
- Max. voltage allow: 36V, Max. electric current: 90mA

### RS-485\_

GPI.

### **COM1** Pin Define **COM2** Pin Define 485-485-NC 6 NC 6 485+ 485+ 2 2 NC NC 7 7 NC 3 NC 3 NC NC 8 8 NC NC 4 9 NC NC GND 5 GND 5

### **J3 Pin Define**

**J7 Pin Define** 

1	GPI_COM	1	GPI_COM
2	GPI15	2	GPI7
3	GPI14	3	GPI6
4	GPI13	4	GPI5
5	GPI12	5	GPI4
6	GPI11	6	GPI3
7	GPI10	7	GPI2
8	GPI9	8	GPI1
9	GPI8	9	GPI0
1			

GPO.

### **J4 Pin Define**

**J6 Pin Define** 

		$\frown$	
9	EGND	9	EGND
8	GPO15	8	GPO7
7	GPO14	7	GPO6
6	GPO13	6	GPO5
5	GPO12	5	GPO4
4	GPO11	4	GPO3
3	GPO10	3	GPO2
2	GPO9	2	GPO1
1	GPO8	1	GPO0



# PCI-SN30

4-axis Pulse Type Motion Control Card



- » 6.5Mpps max. pulse output rate » 2~4 axis linear interpolation
- » Any 2 axis circular interpolation » 28-bit encoder counter

### Features

- 4 axes pulse type motor controllable (stepper/servo motor)
- · 32-bit PCI bus, plug and play
- A/B phase, Pulse/Dir, CW/CCW pulse output modes selectable
- 6.5 Mpps maximum pulse output frequency
- Any 2~4 of 4 axes linear interpolation
- Any 2 of 4 axes circular interpolation
- Spiral interpolation
- Continuous operation mode (with ASIC FIFO)
- Programmable velocity profile with T/S curve acceleration/deceleration
- On-line position and speed change
- 13 homing mode selectable
- · Software limit protection
- Backlash compensation
- Vibration suppression
- Programmable interrupt source
- Multiple cards simultaneously start/stop motion ability
- Pulser input interface

### Accessories (Optional)



### ADP-SN300-R10

- External Supply DC 24V±4V
- General Input
- 4 with LED indicator
- Output Capacity 8 N-MOS output, 1A continuous, 120V DC (max.)
- Connector
- 2 68-pin VHDCI for main card connection Servo Control Connectors
- 4 D-type 26-pin (1 per axis)
- Operating Temperature 0°C to 70°C
- · Operating Humidity RH5~95%, non-condensing • Dimensions
- 121(W) x 204(L) x 47(H)mm 4.8(W) x 8.1(L) x 1.9(H)in



### W68P-SN300-L150

• 68-pin VHDCI male-male cable 1.5m

### **Ordering Information**

Part No.	Description
PCI-SN300-R10 SET	4-axis pulse type motion control set 1. PCI-SN300-R10 x 1 2. ADP-SN300-R10 x 1 3. W68P-SN300-L150 x 2
PCI-SN300-R10	4-axis pulse type motion control card
ADP-SN300-R10	PCI-SN300 terminal board
W68P-SN300-L150	PCI-SN300 VHDCI cable 1.5m

### **Specifications**

### Card ID

- 16 locations set by rotary switch
- 28-bit Encoder Counter -134, 217, 728 to +134, 217, 727
- 28-bit Position Setting Range -134, 217, 728 to +134, 217, 727
- TTL I/O
- 8 configurable TTL I/O Insulation Resistance
- 100 MΩ (min) at 1000Vdc
- Isolation Voltage 2500Vac 1Min
- I/O Connector
- 2 68-pin female VHDCI connector
- Operating Temperature 0°C to 70°C
- Storage Temperature -20°C to 80°C
- Operating Humidity
- 5 ~ 95% RH, non-condensing
- Dimensions 175 (W) x 122(H) mm, 6.9(W) x 4.8(H)in

### Software Support

- OS Support Microsoft Windows XP/7 32-bit
- Develop Language Support Microsoft Visual C/C++, Microsoft Visual Basic, Microsoft Visual C#

### PCI-SN300 Pin Assignment of the 68-pin VHDCI-type Connector

JF2/JF1

		$\sim$			
			25		
(X/Z)	) LS+	1	35	LS-	(X/Z)
		2	30	HOWE	
(X/Z)		3	31		
(X/Z)		4	20		
(X/Z)		5	40		(X/Z)
(X/Z)		7	40	EZ-	
(X/Z)		8	42	CW-	
(X/Z)		å	43	CCW-	(X/Z)
(X/Z)		10	44	SRDY	(X/Z)
(X/Z)		11	45	SVON	(X/Z)
(X/Z)	FRC	12	46	1.5+	(X/Z)
(Y/A)	1.5-	13	47	SD	(Y/A)
(Y/A)	HOME	14	48	PCS	(Y/A
(Y/A)	LTC	15	49	FIN	(Y/A
(Y/A)	CMP	16	50	EA+	(Y/A
(Y/A)	EA-	17	51	EB+	(Y/A
(Y/A)	) EB-	18	52	EZ+	(Y/A
(Y/A)	) EZ-	19	53	CW+	(Y/A
(Y/A)	CW-	20	54	CCW+	(Y/A)
(Y/A)	CCW-	21	55	INP	(Y/A
(Y/A)	SRDY	22	56	ALM	(Y/A
(Y/A)	SVON	23	57	ERC	(Y/A
	NC	24	58	NC	
	NC	25	59	NC	
	NC	26	60	NC	
	NC	27	61	NC	
	NC	28	62	NC	
	NC	29	63	NC	
	EMG	30	64	EXTG	
	NC	31	65	NC	
	EXTG	32	66	EXTG	
	+5Vin	33	67	+5Vin	
	+24Vin	34	68	+24Vin	
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# **Motion Control Function**

The PCI-SN300 provides multiple motion control functions, including 2~4 axis linear interpolation, any 2 axis circular interpolation, 2+1 axis helical interpolation, T/S curve acceleration and deceleration, online position and speed change, backlash compensation, multiple homing process, etc.

### 2~4 Axes Linear Interpolation

### **Any 2 Axes Circular Interpolation** The simultaneous motion to draw a circle

### 2+1 Axes Helical Interpolation

The simultaneous motion between (2~4) axes





Motion for X, Y doing circular interpolation and Z axis doing linear interpolation.



### **T/S Curve Acceleration and deceleration**

Programmable velocity profile with T/S curve acceleration/deceleration



### **Online Position and Speed Change**

Available to change the speed or position on the fly. different direction will deceleration to VL to change direction



### **Backlash Compensation**

The backlash function will compensate the backlash error only when the motion direction is changed.



### Manual Pulse Generator Input



### **Multiple Homing Process**

12 homing modes are available to meet various mechanism requirements. absolute homing reference.



### trigge time х time

Simultaneously Start/Stop

Simultaneously start/stop on multiple axes

Y time z time A s time

### **Compare Trigger Output**

Compare function for you to generate a trigger pulse output at designed counter value



### **Pulse Output Mode**

3 types of output mode for the user: Pulse/ Direction, CW/CCW and A/B Phase

pulse Direction	U	 U	
CW CCW	W		JU
A B phase		ſ,	

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# **Machine Vision Solution**

Motorcon provides machine vision total solutions, including product and system integration. Motorcon machine vision products are including camera, lens, light, vision card, image analysis software and industrial computer. We provide one-stop shopping service and help customers develop software, clip and fixture, and system integration. The applications of the machine vision industry include automatic optical and alignment, robot vision, etc..

### Motorcon Machine Vision Products



### Camera

- High resolution camera, from VGA to 5 MP
- Use industrial CCD/CMOS sensor, from 1/3" to 1/1.8"
- Support global shutter and rolling shutter
- Unique circuit design, excellent noise immunity
- Provide NTSC/PAL, USB 2.0, USB 3.0, GbE, CameraLink and PoE interfaces



### Lens

Flexible

- High resolution lens can be used with megapixel industrial camera
- With a variety of specifications



### Vision Card

- Provide NTSC/PAL, USB 2.0, USB 3.0, GbE, CameraLink and PoE interfaces
- Support PCI/PCIe bus
- Provide external GPIO daughter board with inputs and outputs



### **Image Analysis Tool**

 Provide powerful image processing module, including generalized image processing, management, pattern matching, blob analysis, lens distortion and coordinate transformation, mark inspection, color processing and image gauging

### Machine Vision Application Examples **Electronics**



Invalid



Crooked











### **Industrial Computer**

- Half size and fanless design
- Provide high performance and economy type
- Support PCIe x8 high speed interface

### Light

- Red, white, blue, green, UV and IR are all available
- Allow to choose different sizes for the objects
- Allow for strobe requirement
- High brightness and evenly luminosity
- Allow for pace limited requirement
- Accept customized request

- Support remote monitoring and control via Android
- Connection I/O interfaces: USB, Ethernet TCP/IP • Trigger modes: One shot/Serial Shot/Continuous/
  - Batch/Manual
- Image Format: RAW/BMP/JPG
- Firmware upgradable via USB/Ethernet



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### **Automation Control-2017-V10**









### 2D barcode reader

- phones and tablets



### **Barcode Reading**







**Multiple Geometric Matching** 





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Machine Vision



# **MSC** Series

Machine Vision Camera



### **Advanced Functions**

- Full HD or 6 Megapixels Resolution Support
- Up to 1080p@120fps/3072 x 2048@30fps Support
- H.264 SVC/High/Main/Baseline Profile & MJPEG Support
- Waterproof Industrial Connectors
- Powered by PoE or DC12V
- Digital Input x 1 & Output x1 Support
- RS-485 /RS-232\* Support

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- 4 Way Mounting Support
- 90° Lens Rotation Support
- Supporting Light Sources\*

### **MSC Series**

MSC series, utilizing the latest image sensor and DSP. This Machine Vision Camera embeds with extra ARM CPU which realizes camera side Video Analytics features and could lower the total cost by removing the PC from the system structure. Moreover, open API commands and modulized software features allow partners easier integrating or developing the advanced features/applications into their own software.

Moreover, users could access the cameras via every kind of browsers, like IE, Chrome, Firefox, and Safari. All features could be conveniently set up via web interface through PC, NB, Pad, and Phones. With built-in Video Analytics features, partners could ship out the equipment in a short time. Dynacolor also provides full customization service and development video processing algorithms based on the demand. With simplified user's experience and various image processing algorithms, MSC series will be very helpful on reducing development time and cost to equipment manufacturers.

### Video Analytics Features

- Single Spot Positioning
- Multiple Unit Group Positioning
- 1D Barcode Scanning
- 2D Barcode Scanning
- \* as option feature

### **Browser Based Setting**

- IE/Chrome/FireFox/Safari Support
- ActiveX or APP Free
- Capable to set MSC in Windows PC&NB iOS/Android/ Windows Pad&Phone

### Dimensions (Unit: mm)









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### Specifications

Product		Machine Vision Camera				
Model		MSC-200M-R10	MSC-600M-R10			
Overall						
Effective Pixels		1920 (H) x 1080 (V), 2M	3072 (H) x 2048 (V), 6M			
White Balance		Manual / A\	NB / ATW			
Shutter Speed		1 ~ 1 / 10	000 sec			
Network						
Interface		RJ-45, 10 / 100 / 10	00 Mbps Ethernet			
Video Compress	ion	MJPEG / H.264 Baseline / Mai	in Profile / High Profile / SVC			
Video Streaming		Quad St	reams			
Frame Rate		Up to 1080P @ 120 fps	Up to 3072 x 2048 @ 30 fps			
Protocol		IPv4/v6, TCP/IP, UDP, RTP, RTSP, HTTP, HTTPS, ICMP, FT	P, SMTP, DHCP, PPPoE, UPnP, IGMP, SNMP, QoS, ONVIF			
Security		HTTPS / IP Filter	r / IEEE 802.1x			
Alarm I/O		1 Set, 5V 10kΩ Pull Up / 1 Set, P	hoto Relay Output 300V DC/AC			
Event Notification	n	HTTP / FT	P / SMTP			
Web Application		IE 10, Chrome, Fire	fox, up to 5 Users			
Mechanical						
Lens Mounting		C Mc	punt			
	Network	RJ-45, 10 / 100 / 10	00 Mbps Ethernet			
	I/O	Digital Input x 1/D	igital Output x 1			
Connectors	Alodel   Dverall   Steective Pixels   Vhite Balance   ihutter Speed   ihutter Speed   verall   ihutter Speed   ihutter Speed   verale   ihutter Speed   isource   ihutter Speed   ihutter Speed   ihutter Speed   ihutter Speed	RJ-45 or Stereo Jack				
	Analog Video	BNC	Out			
	RS-485, *RS-232	Full Duplex x 1 or	Half Duplex x 2			
General						
Operating Temp		-10°C ~	50°C			
Humidity		10% ~ 90%, No	Condensation			
Unit Dimension		125 x 82 >	< 52 mm			
Weight		330 g				
Power		PoE & D	DC 12V			
Accessories						
I/O Board						
Power		Adapter,	12V, 1A			
I/O Interface		RS-485 / RS-23	32 / Digital I/O			
Light Source						
Coaxial Light		54 x 45 x 38 m, ra	dius at 22.5 mm			
Flat Light		110 x 63 x 21 mm, light	ing area: 83 x 61 mm			
i lut Light		123 x 110 x 21 mm, light	ing area: 83 x 121 mm			
Ring Light		109 x 80 x 90 m	m, ø 87 / ø 55			
Flat Light		110 x 63 x 21 mm, light	ing area: 83 x 61 mm			
Ū		123 x 110 x 21 mm, light	ing area: 83 x 121 mm			
Rina Liaht		109 x 80 x 90 mm, ø 87 / ø 55				

Product specification and availability subject to change without notice Certain product names mentioned herein may be trade names and / or registered trademarks of their companies

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# **Industry Computer**

Motorcon provides industry computers that have the following characteristics:

- Small controller platform, significantly reduced space, make the machine more flexible on assembling
- Suitable for 4~8 axes mechanical equipment or machine vision applications
- For industrial automation applications environment adaptation, strengthen the case, motherboard and power supply of anti-noise capability
- Providing fanless cooling system, can significantly prevent the environmental oil gas and dust from entering the case, and prolong the computer life



# **MTC-400**

IEIMobile Solutions

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ealthcare

Industrial System

DRing Network ymmunication Automation Control

CPU	Intel® Atom™ D525 dual-core 1.8GHz	Memory	1 GB (Max. 3 GB)	1	
Chipset	Intel® ICH8M	Storage	CF card		
Ethernet	2 x RJ-45	CPU FAN	Yes		
I/O Interface	4 x USB 2.0, 3 x RS-232	Expansion slots	PCI/PCIe		
Display	1 x VGA	Power Supply	130W		

# **MTC-800**

CPU	Intel® Atom™ D525 dual-core 1.8GHz	Memory	1 GB (Max. 3 GB)	-
Chipset	Intel® ICH8M	Storage	CF card/SATA HDD	
Ethernet	2 x RJ-45	CPU FAN	No	
I/O Interface	4 x USB 2.0, 4 x RS-232	Expansion slots	PCI/PCIe	2
Display	1 x VGA, 1 x DVI	Power Supply	130W (optional)	٤ [

# **MTC-820**

CPU	Intel® Core™ i5 dual-core 2.7GHz	Memory	2 GB (Max. 10 GB)	
Chipset	Intel® H61	Storage	CF card/SATA HDD	
Ethernet	2 x RJ-45	CPU FAN	No	
I/O Interface	2 x USB 3.0, 4 x USB 2.0, 4 x RS-232	Expansion slots	PCI/PCIe	
Display	1 x VGA, 1 x DVI	Power Supply	200W (Optional)	2

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