

# Adept Cobra PLC Robots



The Adept Cobra PLC Robot is a high-performance 4-axis SCARA robot with a PLC Server. All system configuration, initialization and programming is performed directly from the customer supplied PLC.

**Easy to install, program and operate!**

All application programs and locations are defined and reside within the user's PLC. The PLC server retrieves this data and commands the robot to move. It's as simple as that. Customers new to robotics can now easily install, program, operate and support high-performance robots.

**Low purchase price and low support costs!**

The familiar environment of the PLC combined with the attractive price makes this one of the most cost-effective robots in the industry.

## HARDWARE

### Robot

4-axis SCARA robot - available with 600 mm or 800 mm reach (see Page 2 for detailed specifications)

### PLC Server

The Adept PLC Server provides direct connectivity to the PLC (see Page 2 for detailed specifications)

### PLC Compatibility

#### Allen-Bradley DF1 Protocol

The Adept Cobra PLC robot is directly compatible with the Allen-Bradley DF1 protocol.

#### Other Protocols

Other protocols can be supported. Contact us for more details.

## SOFTWARE

### Real-Time Operating System

The Adept Cobra PLC robot includes a real-time operating system to ensure reliability and a high-level of safety.

### PLC Server Software

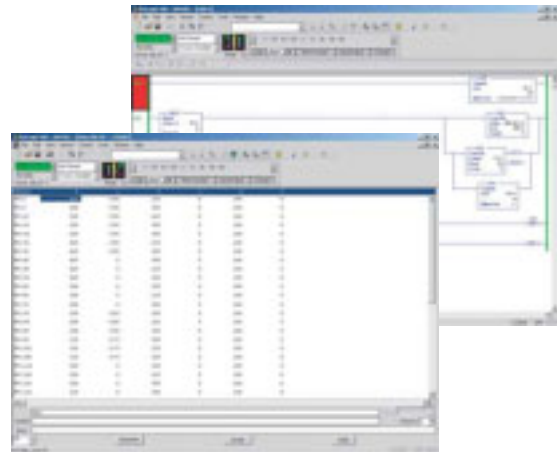
The PLC server software provides seamless connectivity with the customer supplied PLC. The PLC server is pre-configured and ready for operation.

### Key software features

- Automatic Startup
- Straight-Line motion
- Programmable Speed and Acceleration

### Program directly from PLC in PLC's native language

- Functionality provided includes
- Initialization
- Programming
- Jog control
- Tool I/O Control
- Status Functions



### Target Applications

The target applications include

Pick and Place

Multiple pick and place locations supported


Flexible drop-off or reject locations

Part Transfer

Screwdriving

### Options

Internal solenoid valves for robot gripper

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## ROBOT SPECIFICATIONS

### Mechanical

- Reach: 600 mm (23.6 in)
- Footprint: 272 mm (10.7 in) x 200 mm (7.9 in)
- Payload: 2.0 kg (4.4 lb) rated  
5.5 kg (12.1 lb) maximum
- Moment of Inertia: Joint 4 - 450 kg-cm<sup>2</sup> (150 lb-in<sup>2</sup>) max
- Repeatability, XY: ±0.020 mm (±0.0008 in)  
Z: ±0.010 mm (±0.0004 in)  
Theta: ±0.03°
- Joint Range of Motion  
Joint 1: ±105°  
Joint 2: ±150°  
Joint 3: 210 mm (8.3 in)  
Joint 4: ±360°
- Joint Speed (maximum)  
Joint 1: ±360°/sec  
Joint 2: ±672°/sec  
Joint 3: 1100 mm/sec (43 in/sec)  
Joint 4: 1200°/sec
- Encoder type: Absolute
- Robot Brakes: Joints 1, 2 and 4: Dynamic  
Joint 3: Electric
- Weight (without options or tooling): 34 kg (75 lbs)

### Environmental

- Robot Power (customer supplied):  
220 VAC single phase (10A)  
24 VDC (5A)
- Temperature: 5°C - 40°C (41°F - 104°F)
- Relative Humidity: 5 to 90%, non-condensing

## PLC SERVER SPECIFICATIONS

### Safety

- Dual Channel E-Stop connectivity
- Meets CE Category-1 safety requirements
- Front Panel (included) has E-Stop switch

Communications: DF1 via RS-232

Teach Pendant Option

Operating Power: 24VDC ±10%, 5A

### Environment

- Temperature: 5°C - 40°C (41°F - 104°F)
- Relative Humidity: 5 to 90%, non-condensing

## It's as simple as 1, 2, 3!

### 1. Initialize locations

FLOATING POINT REGISTER (for robot position)							
1	2	3	4	5	6	7	8
Speed	Accel Rate	X	Y	Z	yaw	pitch	roll

### 2. Command the robot to move

COMMAND BITS						
Value 0	0	1	2	3	4	5
Value 1	Power OFF	Reset	Home	Stop	Move	Absolute
	Power ON					Relative
						6
						Joint
						Straight



Customer Supplied PLC

### 3. Check status

STATUS BITS						
Value 0	0	1	2	3	4	5
Value 1	Power OFF	No Fault	Uncalibrate	Not Ready	E-Stop	Complete
	Power ON	Fault	Calibrated	Ready		Executing
						6
						In-position

Not all functions are shown. Actual programming may vary.  
Contact Adept Applications Support for details.

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