PP100 INDUSTRIAL COLLABORATIVE CARTESIAN ROBOT

The World's only Collaborative Cartesian

The growth of collaborative robots that can safely work side-by-side with people makes automation accessible to a new generation of applications. However, this accessibility has come at the cost of higher prices, the loss of features and reduced cycle time.

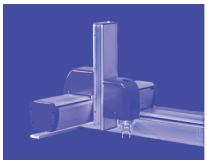
The PP100 is the world's only collaborative Cartesian robot. Its unique mechanical design offers a price below most collaborative robots and lowers the overall costs of table top applications. This lightweight robot is available with 2-axes (XZ) or 3-axes (XYZ) and an option Theta/Servo Gripper. It can be carried by one person, mounted on a table and, by plugging in just an AC power cord and an Ethernet cable, is ready to operate, which greatly reduces integration time and cost. The controller, power supplies and harnessing are embedded within the robot's structure, simplifying installations and allowing the PP100 to be mounted above existing work areas and equipment such as conveyor belts. The collaborative Cartesian design allows for extremely small, cost saving workcells that have minimal impact on existing production.

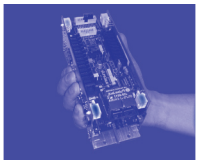
TUV Certified Collaborative Robot Forces

Collaborative robots potentially permit the creation of a mixed manufacturing environment where people can enter and efficiently work around robots without the loss of throughput. However, other "collaborative" robots must move slowly or use a reduced speed collaborative mode, impacting production whenever users are near. The PP100's unique combination of speed and safety allows its operation at full speed and delivers industrial throughput at safe ISO standard collaborative forces, so operators can move freely around the robot without concerns for their safety or loss of productivity.

The complex geometries of 6-axis collaborative robots make teaching positions difficult for operators, while the PP100's simple Cartesian geometry is particularly easy for new users to teach, since any position and move combination is intuitive and possible. In addition many collaborative robots use a programming environment with limited features to simplify setup for new users. Precise Automation's collaborative robots offer the flexibility of both an easy to use web based interface as well as an optional advanced programming environment as capable as any industrial robot. The easy to use Guidance Motion interface is accessible from any web enabled device and allows technicians or operators to quickly and easily setup and teach the PP100 to perform real work.

PRECISE AUTOMATION





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General Specifications	Range & Features
Range of Motion & Resolution	
X Axis	500 mm standard, 1090 mm option available in XYZ version 685 mm standard, 1270 mm option available in XZ version
Y Axis	350 mm standard
Z Axis	260 mm standard in XYZ version 229 mm standard in XZ version
Theta Axis	+/- 270 degrees
Gripper	An optional integrated servo gripper is available. The servo gripper has 58 mm of travel and can be outfitted with user developed fingers for holding a variety of different size parts. Software can control squeeze force (between approximately 0-23N for close force, 0-10N for open force) and open/close speed. Safety features include: protection against dropping parts when robot is powered down or e-stop pressed (gripper provides 7-10N of close force when motor power is off)
Repeatability	+/- 100 µm overall in X, Y and Z directions at 18-22 degrees C
Performance and Payload	
Maximum Acceleration	1.0G with 500 gm payload
Maximum Speed	1,500 mm/sec in X/Y
Maximum Payload	2 kg with gripper option. 3 kg with XZ or XYZ configuration without Theta and gripper
Motors	Brushless DC servo motors with absolute encoders on X, Y, Z and Theta axes, no motion during homing.
TUV Certified Collaborative Forces	Precise collaborative robots have been measured by TUV and certified to exert forces that fall within the force guidelines for collaborative robots as defined by the recent ISO/TS 15066 Standard on Collaborative Robots. Even maximum speed collisions in free space are well under the ISO force limits for operator safety. However, in order to use a robot in an application without safety shields, the application as a whole (including end effectors, operation methods, objects being handled and obstacles in the workcell) must be evaluated for safety. For more information on the evaluation of applications and workcells without safety shields, please contact Precise Automation.
Interfaces	
General Communications	RS-232C interface, 10/100 Mbps Ethernet port, E-stop input, all available on X axis end cap
Digital I/O Channels	Four optically isolated inputs and four optically isolated outputs available on X-axis endcap. Option available for an additional 12 optically isolated digital inputs and 8 optically isolated digital outputs on X-axis back cover. Additional remote I/O available via Precise RIO modules or 3rd party MODBUS/TCP devices
Operator Interface	Web based operator interface supports local or remote control via browser connected to embedded web server
Programming Interface	Three methods available: Guidance Motion (simple GUI for non-programmers using teach and repeat methods), embedded Guidance Programming Language (standalone, modeled after Visual Basic.Net), PC control using open source TCP/IP Command Server operated via Ethernet connection (TCP).
Required Power	Input range: 90 to 264 VAC, single phase, 50-60 Hz, 365 watts maximum
Weight	20 kg for 635 mm travel version, 32 kg for 1270 mm travel version

PRECISE AUTOMATION *automate with ease*

XZ Theta PP100 with gripper

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