OMRON

Programmable Multi Axis Controller
Performance and flexibility in motion control

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N101000:   // A --------
G70;
G91;
G00;
M5;
X0.003Y0.002;
M3;
G01;
X0.009 F(P100);|
X0.008Y0.027;
X0.003Y0.001;
X0.038;
X0.002Y-0.001;
X0.009Y-0.027;
X0.009;
X-0.033Y0.096;
X-0.012;
X-0.033Y-0.096;
G00;
M5;
X0.058Y0.032;
M3;
G01;
X0.003Y-0.001 F(P100);
X0.002Y-0.003;
X0.009Y-0.025;
X-0.002Y0.001;
X0.005;
X-0.001Y-0.002;
X-0.031Y0.092;
X-0.001Y-0.002;
X-0.010;
X0.001Y0.002;
```

Produce faster and increase quality

Flexible and powerful to meet the most complex motion applications

Standard G-Code for syntax compatibility

CK3E Series
Programmable Multi Axis Controller

Advanced motion control system in a compact size

By combining global leading Delta Tau Data Systems' Motion Control technologies, Omron can open up new applications and solutions. The CK3E is a controller designed for precise multi-axis control. You can build a system capable of controlling up to 32 axes of motion and incorporate customized control algorithms into the system. The CK3E allows you to program in C language and reuse existing software assets. The compact design saves space in machines and control panels. EtherCAT® connects servo drives, I/O, and other devices to the CK3E, reducing the number of cables.

COMPACT DESIGN

110 mm

28.6 mm

32 AXES

Built-in ports:
- Modbus TCP for PLC communication, visualization and programming
- EtherCAT for real-time machine control
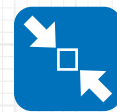- USB port for data logging or G-Code download

High-speed multi-axis control
- Up to 32 axes motion control
- Motion control period: Up to 250 μs

Flexibility
- Compatible with standard G-Code functions
- Flexible function development capability enables high-precision

Saving space & wiring
- Footprint reduced to 1/4 (Based on Omron investigation)
- EtherCAT for flexible system configuration

A cost-effective system to provide high-performance motion control

System Configuration

I/O

Motion

NX I/O

1S Servo System
Up to 32 axes

Controller

EtherCAT

IDE (Integrated Development Environment)

Develop, debug and test programs in a flexible C language

CK3E series

NY51-A Series
IPC Programmable Multi Axis Controller

High-speed, high-precision motion controller plus PC - in one box

The IPC Programmable Multi Axis Controller offers exceptionally precise motion control, with proven technology from Omron's Delta Tau Data Systems, Inc. It was developed to help manufacturers boost both their productivity and their manufacturing quality, delivering world-beating*1 output speeds allied to exception precision. It comes equipped with Windows and real-time operating systems providing exceptional flexibility and reliability. And it's not just superior motion control: it also enables the creation of high-resolution graphics as well as customized applications for high-end production requirements. The system can perform predictable motion control while running intensive data-handling applications and, uniquely, will continue with motion control tasks even if the OS stops working.

Industrial PC

Operating System
· Windows (Embedded Standard 7)

Hypervisor
· Enables the multiple operating system environment

Programmable Multi Axis Controller

Proven motion control technology from Delta Tau Data Systems, Inc.

High-speed multi-axis control
· Up to 128 axes motion control
· Motion control period: 250 μs/16 axes*2

Flexibility
· Flexible function development capability G-Code/ANSI C/original programming language
· Compatible with standard G-Code functions

Reliability
· Multi-tasking of Motion Control and Windows/applications
· Hypervisor*3 software for uninterrupted control even if Windows is down

High-speed and high-precision motion controller and PC in one box

System Configuration

I/O

Motion

NX I/O

1S Servo System
Up to 128 axes

Controller

EtherCAT.

IDE (Integrated Development Environment)

Develop, debug and test programs in a flexible C language

NC Software Runtime

NYM Industrial Monitor

NY51-A Series

Applications

Motion control technology for a wide variety of applications

This flexible and powerful solution carries out the most complex motion applications. This solution is suitable for advanced motion, CNC machining and forward/inverse kinematics and is specially ideal for cutting materials markets such as steel, glass, marble, wood and leather. The result is a high performance solution that allows you to produce faster and increases your manufacturing quality.

XY plasma
cutting metal

Wood turning
and milling

☑ The **G-code capability** together with the **Advanced Block Lookahead**, the **Cutter Compensation** or the **Block Retrace functionalities** among others makes this an accurate, high performance solution for laser, plasma, oxy, waterjet or milling.

## Leveraging features for accurate machining application

G-Code
· Standard RS-274 G-Code interpreter. User-writable subroutines for customized implementation of G, M, T and D-codes. Flexibility to adapt the syntax and to work in combination with any CAD/CAM software.
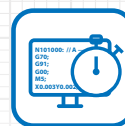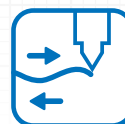
Fast processor + large program buffer
· Fast processor can handle over 10,000 blocks per second and up to 1Gb part programs
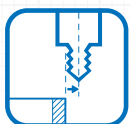
Cutter compensation 2D/3D
· Tool diameter and shape compensation, matching the cutting point exactly as specified in G-Code

Block Retrace for reversing the path
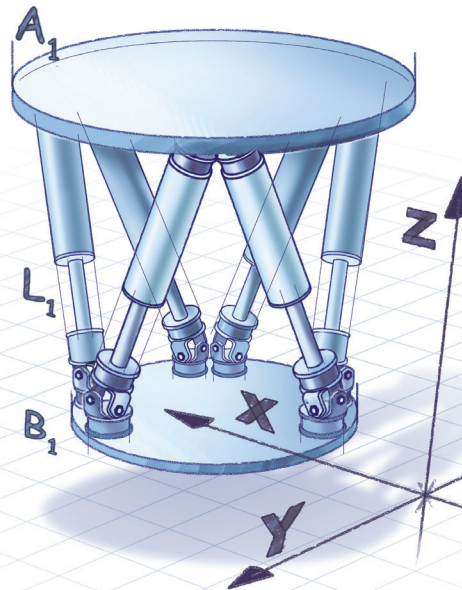· Path can be reverted in order to remove the tool from cutting area

5-axis milling

Complex mechanics
Hexapod robot

COMPLEX KINEMATICS

Complex mechanics can be controlled thanks to the matrix handling and the space conversion. Special applications like Hexapod telescope mirror positioning, can be easily operated by the kinematics handling functionality.

Advanced Block Lookahead
· Instructions in the buffer are analyzed in advance, movements are blended and optimized in speed and acceleration for a better performance

Tangent tool management
· Tools with a cutting direction require a tangent path positioning

Benefits
· Up to **128 axes**
· Up to **32 interpolated axes / channel**
· Increased quality due to an **accurate path control**
· High productivity using **Advanced Block Lookahead optimization**
· **Programming flexibility** makes even the most complex applications possible
· **Compatibility with any CAD/CAM software** syntax as G-code subroutines can be customized

OMRON

Would you like to know more?

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