TRIO
MOTION TECHNOLOGY

A MEMBER OF THE ESTUN GROUP

TRIO MOTION TECHNOLOGY
FLEX System

EtherCAT®

- THE MOTION SPECIALIST -

TRIO
MOTION TECHNOLOGY
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Motion iX

Motion-First Automation

Trio's Motion-iX core includes a wide variety of motion features from simple point-to-point motion, software gearbox, flying shear through to complex kinematics and robot control. This feature-rich core has been developed over 25 years of field experience with real machines.

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Motion Perfect

The *Motion* Perfect integrated development environment provides programming, diagnostics and debug for all Trio products including the Motion PLC range. *Motion* Perfect is a single software tool for all Trio products allowing design, development, testing and deployment in a single tool.

Motion-iX

The focus for all Trio *Motion Coordinators* is on optimizing the machine motion. Through enhanced velocity profiles, compound commands, intelligent multi-axis interpolation and many other features. This focus on the machine motion enables the Trio solution to get the maximum performance from the machine.

***Motion* Perfect**				**Motion-iX Technology**				
Setup		**Diagnostics**	**Programming**		**Advanced Motion-iX Core**			**Network / Technologies**
Program Libraries	Project Management	3D Visualisation	TrioBASIC	PC Application Development C#/C++ etc	Scalable Motion Technologies	64bit Precision	Up to 128 axis coordination control	EtherCAT	RTEX
CAMGen VFFS Packaging	Security Project Encryption	6D Motion Scope	IEC61131 -3 + PLCopen	ROBOTICS Programming	Path Planning Look Ahead	GEARING/CAM MOVELINK FLEXLINK	Complex Motion AVHPcam	ETHERNET/IP	PROFINET
	CAD2Motion	Simulation	G-Code and HPGL	UNIPLAY HMI Design	API resources Windows DLL Linux Libraries	Advanced Interpolation	Kinematic SCARA Delta Cartesian	MODBUS TCP	DEVICENET
	Drive Configuration	Watch Windows			Registration Laser Power Modulation Laser Trigger			CANOPEN	FUNCTIONAL SAFETY

Not all technologies are used with all Trio product.

Fully featured IDE with simulator. License free.

Download and try today from:

www.triomotion.com

Flex Range
Positioning

TRIO MOTION TECHNOLOGY
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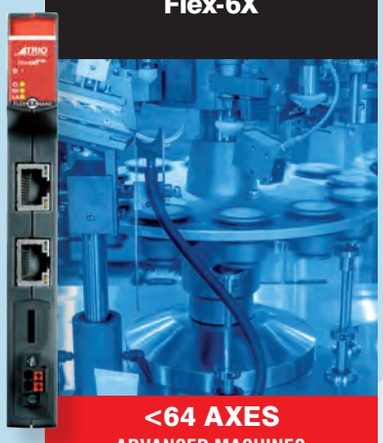
Flex-6 Nano

<64 AXES
ADVANCED MACHINES
Ideal for: Glue laying machines

- Med-High Axis Count
- EtherCAT axes
- Advanced motion features
- Complex I/O
- Integrated Robot

FLEXSLICE SYSTEM
EXPANDIBLE I/O RANGE
DIGITAL | ANALOGUE

Flex-6X



<64 AXES
ADVANCED MACHINES
Ideal for: Battery, filling and packaging machines

- High Axis Count
- EtherCAT axes
- Advanced motion features
- Complex I/O
- Multiple Integrated Robots

FLEXSLICE SYSTEM
EXPANDIBLE I/O RANGE
DIGITAL | ANALOGUE

Flex-7

<128AXES
MULTIPLE MACHINES
Ideal for: Multi-station die-cutting machines

- High Axis Count
- EtherCAT axes
- Advanced motion features
- Complex I/O
- Multiple Integrated Robots
- High bandwidth communications
- Data logging

FLEXSLICE SYSTEM
EXPANDIBLE I/O RANGE
DIGITAL | ANALOGUE

Specifications may change without notice

Flex Range
Building Your System

TRIO MOTION TECHNOLOGY
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MOTION PERFECT
A fully featured IDE for program development and debugging in all Motion-iX languages including IEC61131-3, multi-page HMI screen development and diagnostic tools for machine commission.

Flex-7
All-In-One Controller

Flex-6X Nano
Flexible Machine Controller

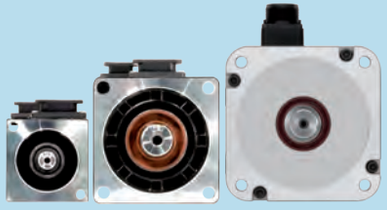
SCARA
Flexible, integrated and easy to use.
Integrate don't interface.

EtherCAT Coupler
Provides a gateway to the Flexslice System for any EtherCAT master

UNIPLAY HMI
System is a revolutionary way to make operator interfaces better, easier.and more secure!

FLEXSLICE I/O
Up to 16 slices can be connected to a single coupler and multiple couplers can be connected to a single controller for complete machine control.

Flexslice I/O
offers a compact, robust, high performance I/O expansion system. Digital and Analogue.



DX DRIVES MX MOTORS
Solutions with new DX servo drive and MX motor range provide performance and dependability, delivering everything you need and nothing more.

Flex-7
Flexible Machine Controller

TRIO MOTION TECHNOLOGY
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AT A GLANCE

- Up-to 128 EtherCAT axes with update rates down to 125μs
- Advanced Motion-iX core with new architecture for communications
- Gigabit Ethernet ports
- Modbus, Ethernet IP, support for upstream connection
- Fully integrated into *Motion* Perfect
- Programming TrioBASIC and IEC 61131-3 with PLCopen
- EBUS interface, compatible with existing Flexslice hardware
- Memory expansion via SD card or USB 2.0 drives
- CAN port
- Real time clock
- 1.2GHz Quad Core 64-bit ARM Cortex A53
- 2GB DDR4 Memory
- Dot matrix display (96 x 64)
- RoHS, CE and UL approved

The **Flex-7** is Trio's high performance, compact Flexible Machine Controller. Offering 128 axes of motion via EtherCAT, with update rates down to 125us.

Benefiting from a re-architected communications interface and a quad core processor the Flex-7 offers a step change in performance in Trio's **Flexible Machine Controlle**r range. With separate cores dedicated to motion and communications combined with the Gigabit Ethernet hardware the Flex-7 can handle complex motion and high-speed communication interfaces for high axis count machines.

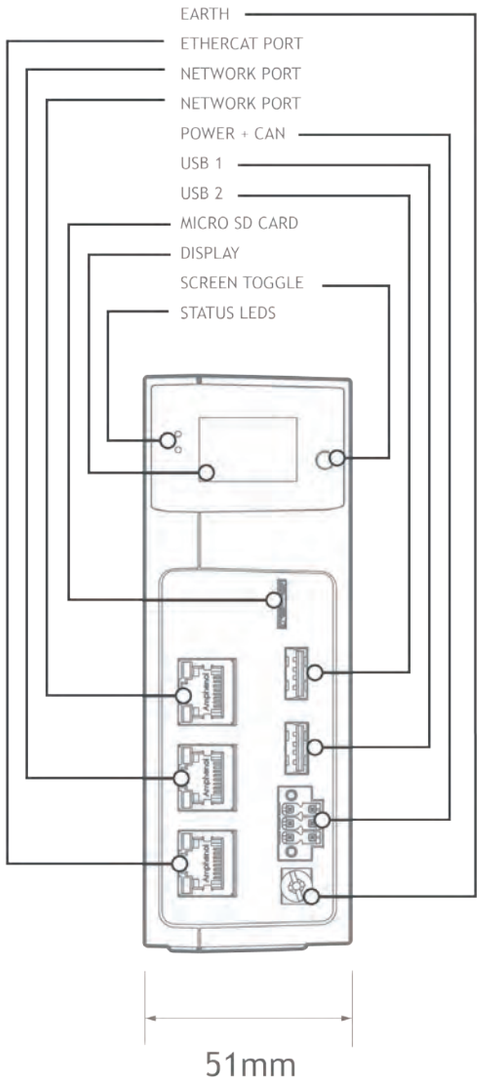
The Flex 7 has two Gigabit Ethernet ports to allow communications to PLC or factory networks.

Application programs can be written in TrioBASIC, Trio's established multi-tasking programming language, or industry standard IEC-61131-3 using the powerful ***Motion* Perfect** application development software.

The Flex-7 is fully compatible with Trio's **Flexslice** system consisting of a range of high performance I/O peripherals including digital and analogue I/O along with stepper controllers, temperature measurement and encoder interfaces.

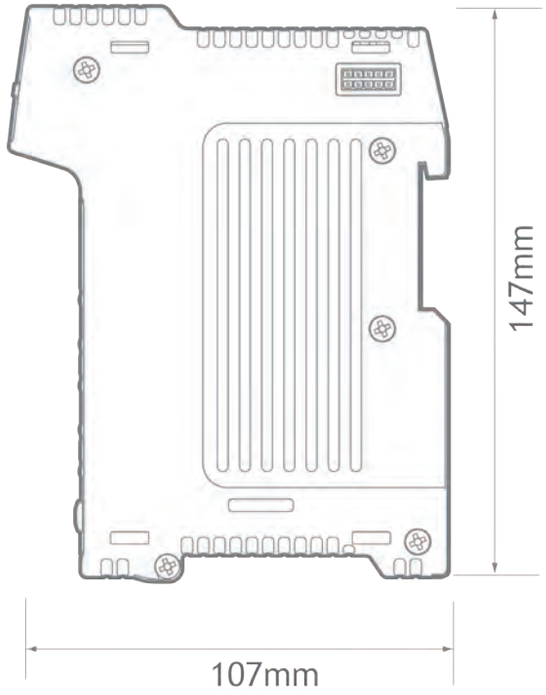
Built on Trio's advanced motion core, the complete suite of motion functionality is available through all languages, making complex motion easy.

Flex-7
Flexible Machine Controller



Product Codes		
P770	Flex-7	2 Axes

FEC Codes	
P730	Kinematics Runtime
P751	Security
P752	Trio RPS
P877	IEC 61131-3
P912	Axis Upgrade



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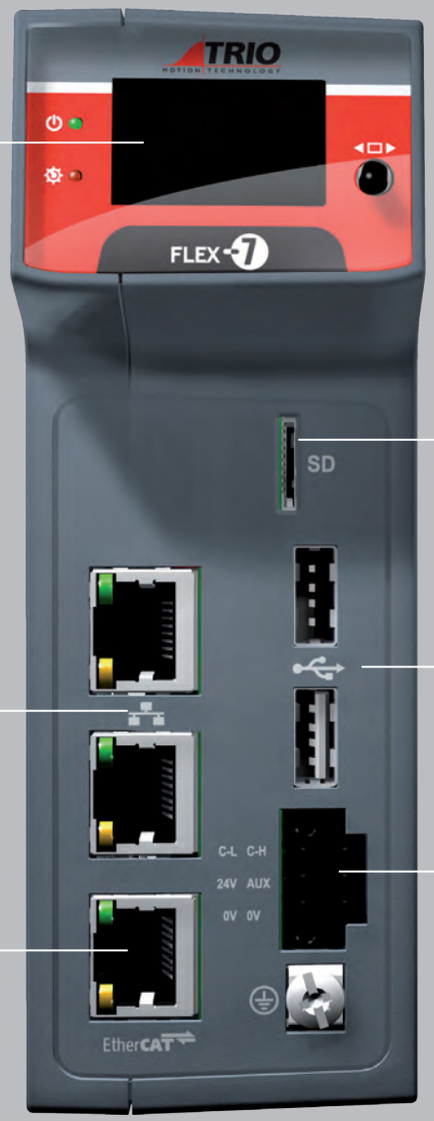

96 X 64 pixel graphical display for status information

The Flex-7 plugs straight into the Flexslice System via the EBUS connector allowing expansion of the system

The Micro SD Card port allows the memory to be expanded to up to 32Gb max

2 x USB 2.0 host port for memory expansion

2x Gigabit Ethernet port, for communication to PLC or factory networks

24V power and CAN port for I/O expansion

EtherCat port, for real time machine control

Flex-6X Nano
Flexible Machine Controller

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AT A GLANCE

- EtherCAT cycles down to 125us
- Up to 64 EtherCAT axes
- Plug and play EtherCAT configuration
- Built on Trio's Motion-iX advanced motion core
- Programmable in Trio's multi-tasking language or IEC61131-3
- Application programming through *Motion* Perfect
- Supports Trio's Flexslice system
- Real time clock
- 1.2 GHz, 64-bit Dual Core ARM Cortex A55
- 128Mbyte DDR3, 128Mbyte Flash
- Clip-Together Design With 'Quick Release' Locks For Mechanical Integrity
- RoHS, CE and UL Approved

The Flex-6X Nano offers a compact integrated EtherCAT solution with up to 64 axes of motion and expandable though the matching Flexslice system.

The Ethernet port on the Flex-6X Nano supports application programming via Trio's easy to use ***Motion* Perfect** along with common HMI and PLC protocols for up-stream connections.

In addition to Ethernet communications, the Flex-6X Nano is an EtherCAT master, with a connection for EtherCAT devices through an RJ45 port or through the EBUS connector for T**rio's Flexslice system** consisting of a range of high performance I/O peripherals.

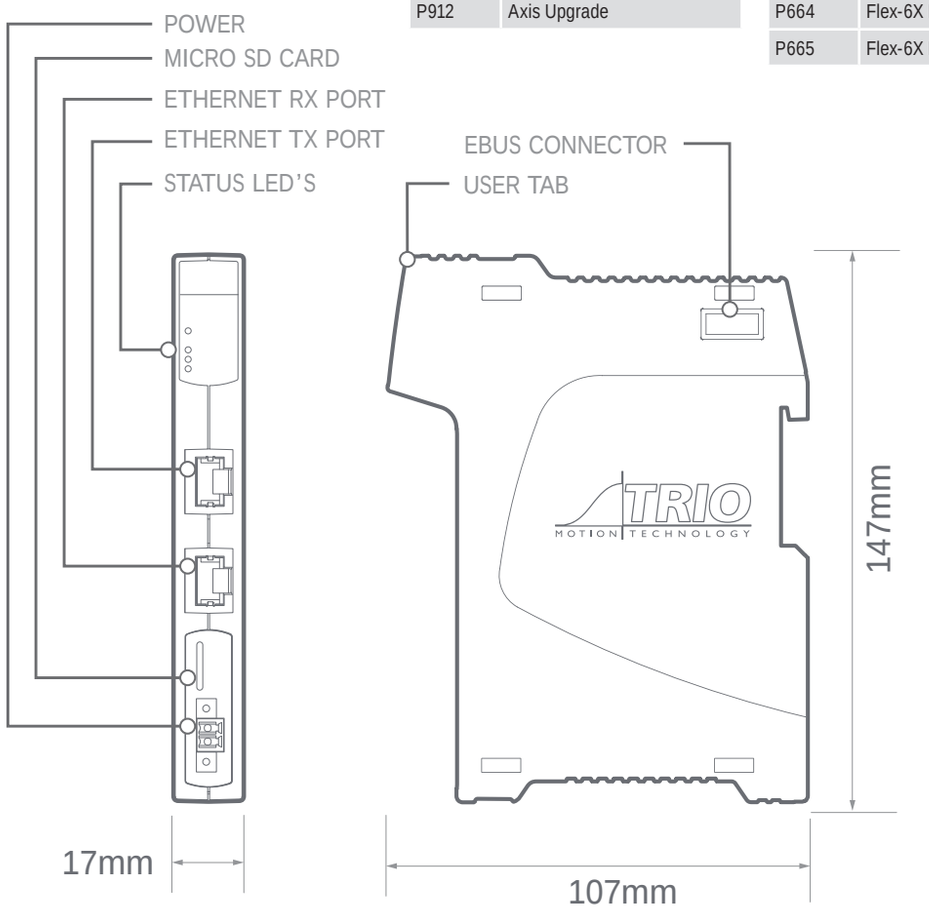
User programs can be written in Trio's established multi-tasking programming language or industry standard IEC61131-3 using the powerful *Motion* Perfect application development software.

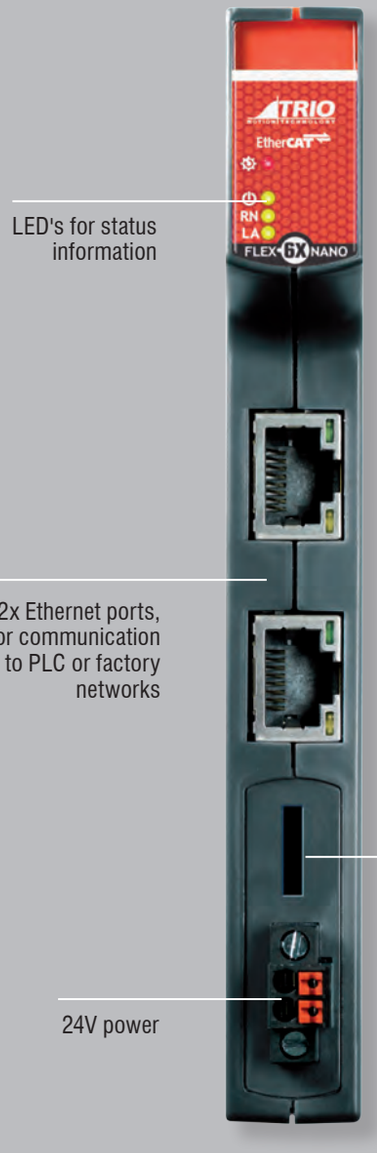
Built on Trio's advanced motion core, the complete suite of motion functionality is available through all languages, making complex motion easy.

Flex-6X Nano
Flexible Machine Controller

FEC Codes	
P730	Kinematics Runtime
P751	Security
P752	Trio RPS
P877	IEC 61131-3
P912	Axis Upgrade

Product Codes		
P660	Flex-6X Nano	2 Axes
P661	Flex-6X Nano	4 Axes
P662	Flex-6X Nano	8 Axes
P663	Flex-6X Nano	16 Axes
P664	Flex-6X Nano	32 Axes
P665	Flex-6X Nano	64 Axes





LED's for status information

2x Ethernet ports, for communication to PLC or factory networks

24V power

The Flex-6X Nano plugs straight into the Flexslice System via the EBUS connector allowing expansion of the system

The Micro SD Card port allows the memory to be expanded to up to 32Gb max

Flex-7 & Flex-6X Nano

Flexible Machine Controller

Specification

Model		 FLEX-6X NANO	 FLEX-7
Part Numbers		P660, P661, P662, P663, P664, P665	P770
Dimensions (mm)	H x D x W	147 x 107 x 17	147 x 107 x 51
Power Supply	Main supply	24V DC	
	Backup supply	n/a	24V DC
Communications	Ethernet	1 port, 100Mbit/s	2 port, 1Gbit/s
	EtherCAT	1 port, 100Mbit/s	1 port, 100Mbit/s
	Serial Port	no	no
	CANopen	no	yes
Peripherals	Display	LED Status	OLED
	Encoder/Stepper	0	
	Digital Input	0	
	Digital Input or Output	0	
	Registration Input	0	
	Flexslice interface	yes	
	SD card	yes	
	USB	no	2x USB 2.0
Environmental	Operating temperature	0 to + 45degC	
	IP rating	IP20	

Model		 FLEX-6X NANO	 FLEX-7
Part Numbers		P660, P661, P662, P663, P664, P665	P770
Programming	Languages	IEC61131-3 (LD, ST, FBD, SFC), TrioBASIC	
	Motion Features	Motion-iX (Basic + Standard + Advanced), PLCopen	
	Motion Cycle Time	125us, 250us, 500us, 1ms, 2ms, 4ms	
	Maximum Programs / Tasks	64 / 22	
	Flash memory	32 x 16000 values	
	User memory	12Mb	
	Table memory	512000 values	
	Max VR variables	16384	
	Execution Benchmark (lines/ms)	125	250
Protocols	Serial Port Protocols	n/a	n/a
	Ethernet Protocols	Modbus TCP, PROFINET IO, Ethernet/IP	Modbus TCP, Ethernet/IP
Flexslice	Maximum number of slices	16	

Specifications may change without notice

Flex-7 & Flex-6X Nano

Flexible Machine Controller

Specification

	Model	 FLEX-6X NANO	 FLEX-7
	Part Numbers	P660, P661, P662, P663, P664, P665	P770
EtherCAT	EtherCAT nodes	256	
	EtherCAT profiles	CoE, FoE	
	EtherCAT PDO data	1514 bytes @2ms and above 956 bytes @ 1ms 896 bytes @ 500us and below	
Axes	EtherCAT axes	2 (default), 4, 8, 16, 32, 64 with FEC code	2 (default), 4, 8, 16, 32, 64, 128 with FEC code
	Virtual Axes	up to 64	up to 128
	Total axes	up to 128	up to 256
Upgrades	FEC codes	P912 (4, 8, 16, 32, 64 axes) P750 (Kinematics) P751 (Security) P752 (RPS) P877 (IEC)	P912 (4, 8, 16, 32, 64, 128 axes) P750 (Kinematics) P751 (Security) P752 (RPS) P877 (IEC)
Certifications		RoHS, CE, UL	RoHS, CE, UL

Flexslice Expansion

Flexible EtherCAT Devices

Extend Your System

TRIO MOTION TECHNOLOGY

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AT A GLANCE

- Use with Trio or 3rd Party EtherCAT Masters
- High Performance, Flexible Topology and Simple Configuration
- Bus Cycle Time Synchronised with *Motion Coordinator* Servo Period
- Bus Coupler Module with 2x RJ45 Ethernet Ports For Ethercat Connection
- Ethercat Protocol Remains Fully Intact Down to Individual Modules Using the E-Bus System
- I/O Functions Tightly Synchronised to Motion Using Ethercat Distributed Clocks
- Automatic Mapping to the *Motion Coordinator* I/O System
- DIN Rail Mounted
- Multiple Practical Push-In Connector Options – No Break Outs Required
- Clip-Together Design With 'Quick Release' Locks For Mechanical Integrity
- User Labelling Facility
- Machine Builder Custom Functionality Options

Flexslice Expansion

Flexible EtherCAT Devices

Extend Your System

TRIO MOTION TECHNOLOGY

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The EtherCAT Flexslice System is designed to let you do more! It offers fast flexible expansion for motion applications and can be used with Trio or 3rd Party Masters.

Trio's Flexslice input/output modules provide a robust, high speed and flexible solution for both motion control and general automation. EtherCAT cycle times from 125 - 4000μsecs are supported and the bus coupler uses EBUS technology to bring all the sub-modules on to the EtherCAT network with no degradation in performance.

The Flexslice system makes available a selection of digital and analogue I/O terminals as well as motion modules with pulse + direction outputs designed for precise positioning of stepper and servo motors via suitable drive technology.

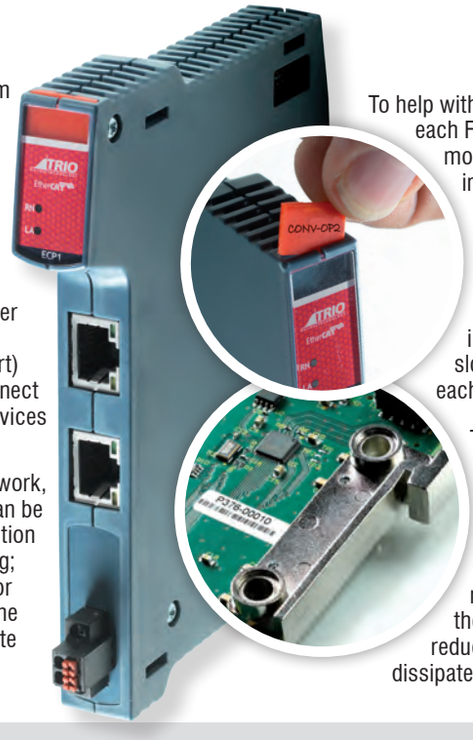
The digital I/O modules have high-speed functionality. In addition, analogue modules and axis modules may be fitted to make a superbly tailored system that can be placed remotely from the master if needed.

All Flexslice modules support automatic addressing with the master to automatically detect and configure the modules on startup. The bus coupler can support up to 16 input/output modules which have a positive mechanical lock and bus connector, making a reliable EBUS connection through the backplane. The complete assembly can be DIN rail mounted.

The Flexslice system begins with the coupler when used with Trio EtherCAT controllers other than the Flex range.

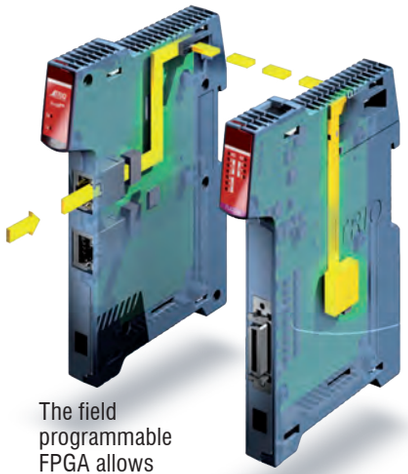
The coupler is connected to the network via the upper RJ45 (In port). The lower RJ45 (Out port) may be used to connect further EtherCAT devices in the same strand.

In the EtherCAT network, the P366 coupler can be installed in any position in the Ethernet string; making it suitable for operation close to the master or at a remote position.



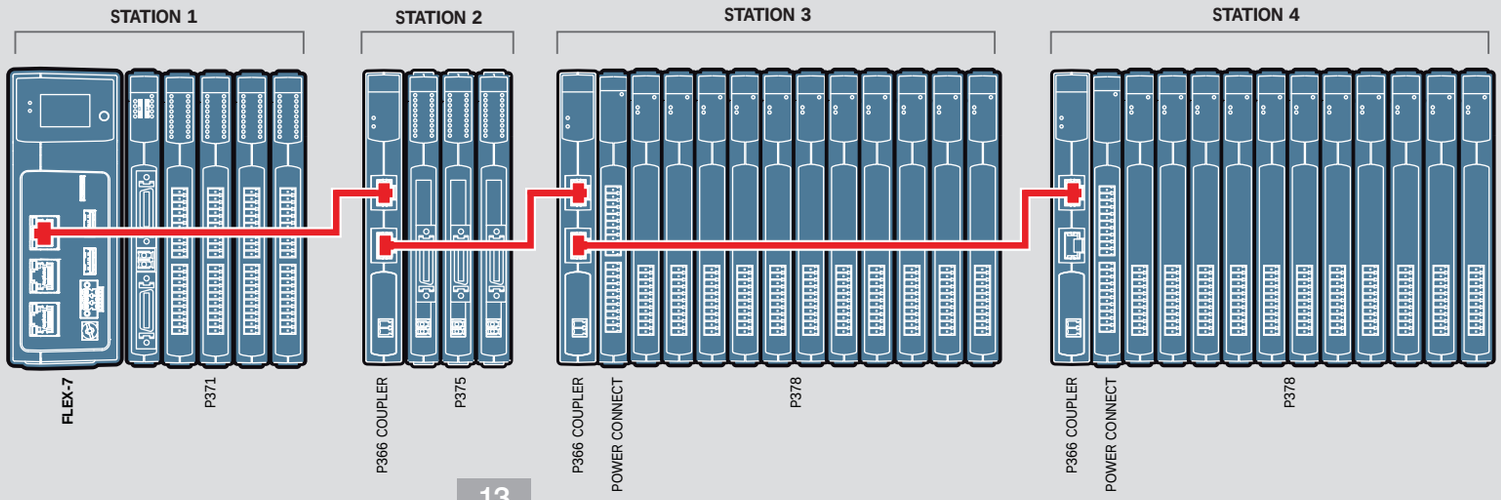
To help with identification, each Flexslice module incorporates a handy removable tab that can be written on. It simply slides in and out of a slot at the top of each module.

The robust metal chassis provides a good earth from the pcb of each module to the DIN rail to reduce noise and dissipate heat.



The field programmable FPGA allows customisation of the functionality of some Flexslice Modules using *Motion* Perfect. The program can be "locked-down" creating a unique function for a machine builder which protects the functionality from being copied.

Up to 16 digital I/O or 8 analogue I-O (for the P367, P368, P374, P375, P378 and P379) Flexslice Modules are supported per P366 EtherCAT Coupler when required. Extra stations can be added to the network using the second EtherCAT port.



Flexslice Expansion

Flexible EtherCAT Devices

Extend Your System

All Flexslice Modules	
Connectors	Push-in
Cable length (max)	30m
Dimensions (mm)	15w x 147h x 107d
Dimensions (P366)	17.2w x 147h x 107d
Weight	145 g
EtherCAT refresh cycle	≥ 125us
Isolation	1KV
Compliance	RoHS and CE

P366: EtherCAT Coupler

The P366 Flexslice EtherCAT Coupler connects EtherCAT with the EtherCAT slices if required. One station consists of a P366 Coupler and up to 16 Flexslice EtherCAT modules. The Coupler converts the passing telegrams from Ethernet 100BASE-T to EBUS signal format.

Power supply requirement	24V DC, 0.8A min for full system
EtherCAT Connection	RJ45
Protocol	EtherCAT
Data rate	100 Mbit/s
Dimensions (mm)	17.2w x 147h x 107d
Weight	160g
Max Load	16
Network Cable	CAT5e min

P362: Flexslice Power Connect

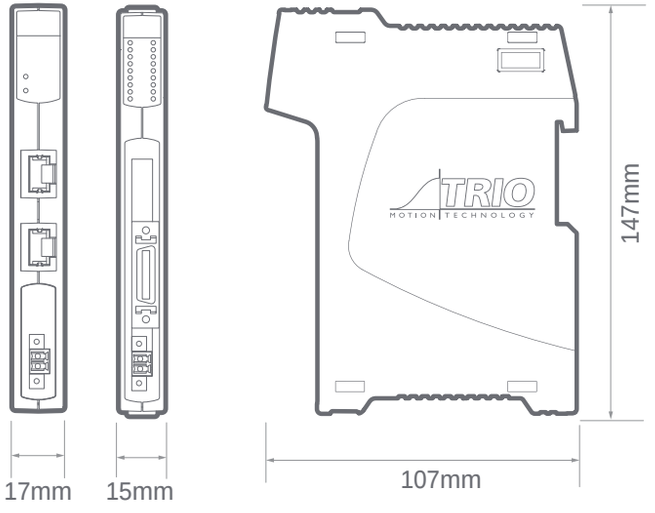
The P362 Flexslice Power Connect provides a solution for simple and convenient wiring of 3 wire sensor power and return wires. The pins of the 2 x single-row push-in connectors are joined together to form 2 isolated banks of commoned connections. With 0V connected to the lower connector and 24V to the upper connector, the LED gives an indication that power is on.

Module current consumption (EBUS 5V)	0mA
Power supply requirement	24V (+/-20%) DC
Max connector current	4A
Unit Load	0

P367: Flexslice Thermocouple

The P367 Flexslice Thermocouple module has 4 thermocouple inputs, each digitised to a resolution of 16 bit. The 4 thermocouple inputs are brought out to a single row push-in connector. A second single row push-in connector has 4 relay outputs for control of a heater or other switched load.

Power supply	via the EBUS
Module current consumption (EBUS 5V)	160mA max
Number of Inputs	4
Thermocouple types	J, K, T, E
Resolution	16 bit
Number of Outputs	4
Output type	Normally open (NO) solid state relay
Load type	Resistive, inductive and capacitive
Max. Output Voltage	24V
Max Output Current	100mA
Unit Load	1.25



Note: Flexslice I/O System "Max Load" = "Unit Load" of each Flexslice Module

Specifications may change without notice

Flexslice Expansion

Flexible EtherCAT Devices

Extend Your System

TRIO MOTION TECHNOLOGY

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P368: Flexslice RTD Module

The P368 Flexslice RTD module has 4 resistance temperature detector (RTD) inputs, each digitised to a resolution of 16 bit. The 4 RTD inputs are brought out to a single row push-in connector. A second single row push-in connector has 4 relay outputs for control of a heater or other switched load.

Power supply	via the EBUS
Module current consumption (EBUS 5V)	160mA max
Number of Inputs	4 (or 2 with 4 wire RTD)
RTD types	PT100 2, 3 or 4 wire
Resolution	16 bit
Number of Outputs	4
Output type	Normally open (NO) solid state relay
Load type	Resistive, inductive and capacitive
Max. Output Voltage	24V
Max Output Current	100mA
Unit Load	1.25

P371: 16-Out PNP

The P371 digital output Flexslice connects the binary control signals from the *Motion Coordinator* to the machine's output devices at 24V DC. All 16 outputs are current sourcing (PNP) type and have electrical isolation. Outputs and power connection are via 2 x single-row push-in connectors. The Flexslice module indicates the output signal states via LEDs.

Module current consumption (EBUS 5V)	110mA max
Number of Digital Outputs	16 (2 banks of 8)
Power supply requirement	24V (+/-20%) DC
Load type	Resistive, inductive and capacitive
"ON" time	110us (10% to 90%)
"OFF" time	210us (90% to 10%)
Max. Output current	0.5A per channel
Max. Output current	4A per bank of 8 Outputs
Short−Circuit Protection	1.4A typ per output
Over voltage Protection	Yes
Reverse Voltage Protection	Yes
Unit Load	1

P372: 16-In PNP

The P372 digital input Flexslice connects 24V DC signals from devices on the machine to the binary control registers in the *Motion Coordinator.* All 16 inputs are current sinking (PNP) type and have electrical isolation. Inputs and power connection are via 2 x single-row push-in connectors. The Flexslice module indicates the input signal states via LEDs.

Module current consumption (EBUS 5V)	100mA max
Number of Digital Inputs	16 (2 banks of 8)
Power supply requirement	24V (+/-20%) DC
"ON" Voltage threshold	11.2V typ
"OFF" Voltage threshold	10.2V typ
Input current	3.5mA typ
Input filter Cut-off (RC network)	18KHz
Unit Load	1

P374: Flexslice Analogue 2 Servo Axes

The P374 Flexslice Analogue 2 Servo Axis Module allows up to 2 servo motors, stepper motors or encoders to be connected to a control system. It supports incremental encoder inputs. If configured for stepper / pulse output an axis can be pulse+direction or quadrature simulated encoder output. Two 20 way MDR connectors provide a reliable shielded connection for high speed signals. Each MDR connector supports all the signals for full closed loop control of a servo axis.

Module current consumption (EBUS 5V)	180mA max
Max Axes	2 (software configurable)
Max Enc Rate	8M Edges/s encoder count
Max Step Rate	8MHz pulse count
Step / Pulse Width	Pulse Control or Square Wave
Enc / Step Input / Output	RS422
DAC Voltage Output	2 x 12bit +/-10V @ 5mA
Registration Inputs	4 x 24V Isolated PNP inputs
WDOG Output	2 x Normally open (NO) solid state relay
WDOG Max. Output Voltage	24V
WDOG Max Output Current	100mA
Field Programmable	Yes
Power Supply	24V (+/-20%) DC @ 100mA
Unit Load	2.5

Note: Flexslice I/O System "Max Load" = "Unit Load" of each Flexslice Module

Flexslice Expansion

Flexible EtherCAT Devices

Extend Your System

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P375: Flex 3-Axis

The P375 Flex 3 Axis Module allows up to 3 stepper motors or encoders to be connected to a control system. It supports incremental encoders. If configured for stepper / pulse output an axis can be pulse+direction or quadrature simulated encoder output. A single MDR connector provides a reliable shielded 26 way connector for high speed signals. The P375 is compatible with most high-resolution microstep drives.

Max Step Rate	8MHz pulse count
Step / Pulse Width	Pulse Control or Square Wave
Max Enc Rate	8MHz encoder count
Module current consumption (EBUS 5V)	150mA max
Field Programmable	Yes
Step/Enc Port	MDR Connector 0...5V
Max Axes	3 (software configurable)
WDOG Output	Yes
Resistration	1 per axis
Unit Load	2

P376: 16-Out NPN

The P376 digital output Flexslice connects the binary control signals from the *Motion Coordinator* to the machine's output devices, such as relays, contactors, valves, lamps etc. at 24V dc. All 16 outputs are current sinking (NPN) type and have electrical isolation. Outputs and power connection are via 2 x single-row push-in connectors. The Flexslice module indicates the output signal states via LEDs.

Module current consumption (EBUS 5V)	110mA max
Number of Digital Outputs	16 (2 banks of 8)
Power supply requirement	24V (+/-20%) DC
Load type	Resistive, inductive and capacitive
"ON" time	75us (90% to 10%)
"OFF" time (typ)	105us (10% to 90%)
Max. Output current	0.5A per channel
Max. Output current	4A per bank of 8 Outputs
Short−Circuit Protection	3A typ per output
Over voltage Protection	Yes
Reverse Voltage Protection	Yes
Unit Load	1

P377: 16-In NPN

The P377 digital input Flexslice connects 24V dc signals from devices on the machine to the binary control registers in the *Motion Coordinator*. All 16 inputs are current sourcing (NPN) type and have electrical isolation. Inputs and power connection are via 2 x single-row push-in connectorss. The Flexslice module indicates the input signal states via LEDs.

Module current consumption (EBUS 5V)	100mA max
Number of Digital Inputs	16 (2 banks of 8)
Power supply requirement	24V (+/-20%) DC
"ON" Voltage threshold	13.7V typ
"OFF" Voltage threshold	14.6V typ
Input current	3.5mA
Input filter Cut-off (RC network)	18KHz
Unit Load	1

P378: 8 Analogue Outputs

The P378 Flexslice 8 Analogue Output module has eight programmable voltage range output terminals, each digitised to a resolution of 12 bit. The 8 single ended outputs have a common 0V potential and are brought out to a single push-in connector.

Power Supply	via the EBUS
Module current consumption (EBUS 5V)	200mA max
Signal voltage	-10...+10V; 0...+10V
Signal current	+/-6mA max
Resolution	12 bit
Output impedance	0.5ohm
Number of Analogue Ouputs	8
Unit Load	1

Note: Flexslice I/O System "Max Load" = "Unit Load" of each Flexslice Module

Specifications may change without notice

Flexslice Expansion

Flexible EtherCAT Devices

Extend Your System

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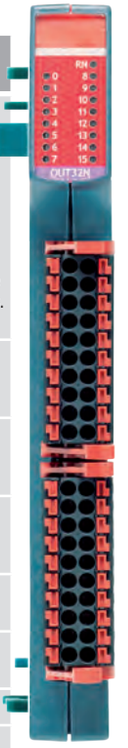
P379: 8 Analogue Inputs

The P379 Flexslice 8 Analogue Input module has eight programmable voltage range input terminals, each digitised to a resolution of 12 bit. The 8 single ended inputs have a common 0V potential and are brought out to a single row push-in connector.

Power Supply	via the EBUS
Module current consumption (EBUS 5V)	160mA max
Signal voltage	-10...+10V; 0...+10V
Resolution	12 bit
Overvoltage protection	±25V
Number of Inputs	8
Unit Load	1.25

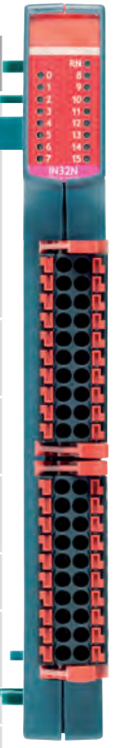
P386: 32-Out NPN



The P386 digital output slice connects the binary control signals from the *Motion Coordinator* to the machine's input devices, such as relays, contactors, valves, lamps etc. at 24V dc. All 32 outputs are current sinking (NPN) type and have electrical isolation. Outputs and power connection are via 2 x double-row push-in connectors. The Flexslice module indicates the output signal states via LEDs.

Module current consumption (EBUS 5V)	160mA max
Output-Bank 1	16 x NPN Output, 3.5mA typ, 24V dc common
Output-Bank 2	16 x NPN Output, 3.5mA typ, 24V dc common
Power supply requirement	24V (+/-20%) DC
Load type	Resistive, inductive and capacitive
"ON" Voltage	13.7V typ
"OFF" Voltage	14.6V typ
Input current	3.5mA typ
Input filter Cut-off (RC network)	18KHz
Unit Load	1

P387: 32-In NPN



The P387 digital input slice connects 24V dc signals from devices on the machine to the binary control registers in the *Motion Coordinator*. All 32 inputs are current sourcing (NPN) type and have electrical isolation. Inputs and power connection are via 2 x double-row push-in connectors. The Flexslice module indicates the input signal states via LEDs.

Module current consumption (EBUS 5V)	160mA max
Input-Bank 1	16 x NPN Inputs, 3.5mA typ, 24V dc common
Input-Bank 2	16 x NPN Inputs, 3.5mA typ, 24V dc common
Power supply requirement	13.7V typ 24V (+/-20%) DC
Load type	3.5mA Resistive, inductive and capacitive
"ON" Voltage	13.7V typ
"OFF" Voltage	14.6V typ
Input current	3.5mA typ
Input filter Cut-off (RC network)	18KHz
Unit Load	1

P359: 8-In Analogue Current

The P359 Flexslice 8-In Analogue Current Input module has eight input terminals, each digitised to a resolution of 12 bit. The 8 single ended inputs have a common 0V potential and are brought out to a single row push-in connector.

Power Supply	via the EBUS
Module current consumption (EBUS 5V)	160mA max
Input-Bank 1	8 x NPN Inputs, 3.5mA typ, 24V dc common
Resolution	12 bit
Overvoltage protection	±25V
Number of Analogue Inputs	8 4 - 20mA
Unit Load	1.25

Note: Flexslice I/O System "Max Load" = "Unit Load" of each Flexslice Module

Motion iX

TRIO MOTION TECHNOLOGY

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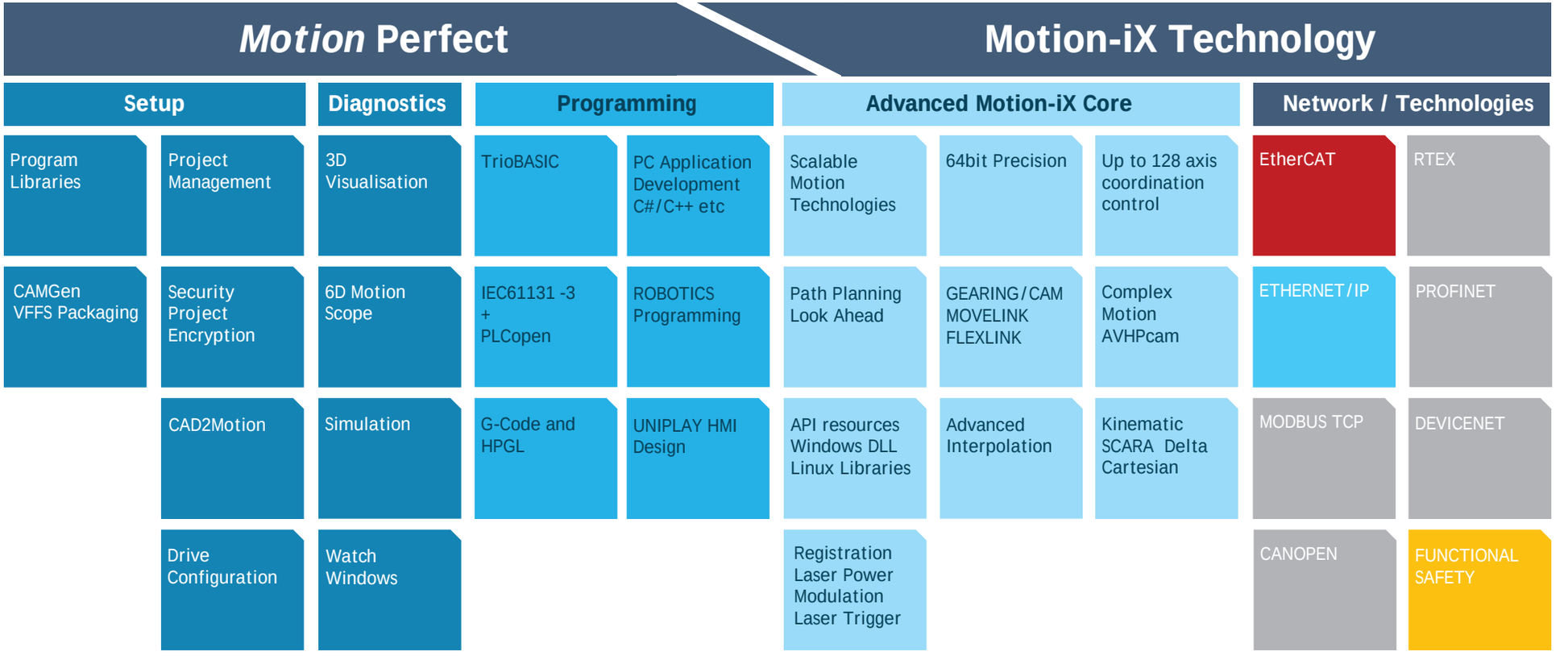
Motion Optimal Engineering Technologies



Not all technologies are used with all Trio product.

Combining an advanced motion core with Trio's ease-of-use, Motion-iX offers performance and dependability of packaged solutions, from "The Motion Specialist", where motion is the core and not just a bolt-on capability.

Motion-iX – a unified software engineering framework for machine development, that places the focus on optimising motion and complex kinematics, including robotics such as SCARA, to deliver truly optimal machine control performance.

Motion-iX includes development in IEC61131 and PLCopen, and boasts inverse kinematics capabilities to truly coordinate all machine axes as one, including robots to maintain tight synchronisation or robots and machine as one. Virtualization allows simulation of the mechanics and motion to significantly reduce development and testing, delivering optimal control every time, by minimising machine cycle times.

Specifications may change without notice

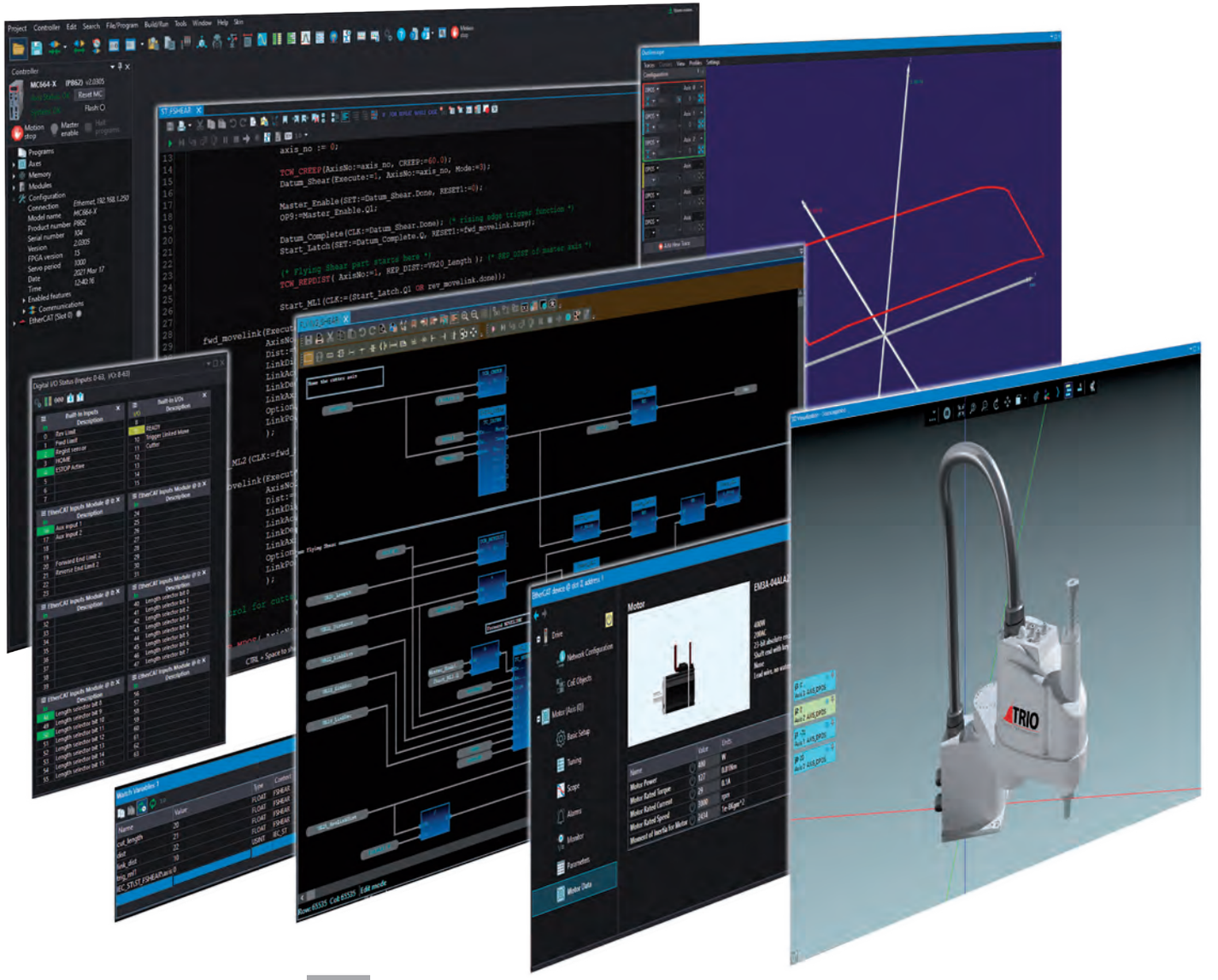
Motion Perfect

Design, Develop, Test, Deploy and Secure

Built on Trio's **Motion-iX** core technology, *Motion* Perfect provides the user with a re-designed easy to understand interface for rapid application development, controller and drive configuration and monitoring of functions.

The commissioning of DX Servo Drives, SCARA and machines is made simple with a series of Device Configuration Screens allowing access to status information and diagnostics at a glance. All motor axes can be detected, setup, monitored and controlled in real-time from the easy to use dialogue windows.

Motion Perfect includes access to IEC 61131 and PLCopen and the robotics solution; TrioRPS. Advanced visualisation including a 3D oscilloscope and IP protection of your projects are also included within *Motion* Prefect.



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TRIO MOTION TECHNOLOGY
FLEX System

Trio Motion Technology specialises in advanced motion control as a core, providing a range of *Motion Coordinators*, drives and motors, expansion interfaces, I/O modules and HMI's built on Motion-iX technologies and designed to enable the control of industrial machines with the minimum of external components.

In support of the Trio concept, we aim to offer the best technical support by telephone, email, our comprehensive website and training courses held throughout the year. Please look at our web site for details.

www.triomotion.com

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