



IndraMotion MTX – highly productive CNC solution for all machine tools

Rexroth IndraMotion MTX is the individually scalable CNC platform with integrated PLC for successful machining and forming applications. Excellent performance and comprehensive technology functions open new horizons for maximum productivity and flexibility.

Whether you control a standard machine or a fully automated production system – IndraMotion MTX always ensures highly dynamic processing with minimized downtimes in your application. The following system versions are available:

- ▶ IndraMotion MTX micro – the tailor-made, compact system solution for turning and milling machines
- ▶ IndraMotion MTX standard – the modular CNC control for universal machines and machining centers
- ▶ IndraMotion MTX performance – the high-performance CNC control for fast machining centers with up to 64 axes
- ▶ IndraMotion MTX advanced – the CNC control with extra power for multi-technology machining with the highest dynamics

Your benefits

- ▶ Innovative CNC kernel with comprehensive technology functions for turning, milling, drilling, grinding, bending, nibbling, punching, shape cutting and handling
- ▶ Shortest CNC cycle times, even for high-speed machining
- ▶ Minimum PLC processing times
- ▶ Open system platform
- ▶ Performance and function individually scalable
- ▶ sercos III automation bus for fast, continuous communication between control, drives, and I/O components
- ▶ Uniform operating concept for easy programming
- ▶ Flexibly configurable user interface
- ▶ Open standards for easy connection of higher-order ERP systems



IndraMotion MTX is the tailor-made CNC solution for turning, milling, drilling, grinding, bending, nibbling, punching, and shape cutting.



Open, complete, and efficient

- ▶ Highest manufacturing precision down to the nanometer range
- ▶ Modern CNC solution for excellent performance
- ▶ Shortest CNC and PLC cycle times for dynamic machining



Application examples:

IndraMotion MTX micro is the compact, powerful, and CNC cost-effective solution from Rexroth for standard turning and milling machines.

- ▶ Turning with constant cutting speed
- ▶ Rigid or non-rigid tapping
- ▶ Combined spindle/revolver axes
- ▶ Milling with 2.5D and 3D machining with up to 4 interpolating axes
- ▶ Direct programming of drawing dimensions
- ▶ Turning, drilling, and milling cycles for complete machining
- ▶ Cylinder surface and C-axis machining



The modular IndraMotion MTX system controls standard and universal machines for milling, turning, drilling, grinding, nibbling, punching, shape cutting, and bending easily, quickly, and effectively. Proven CNC functions cover a broad range of applications from highly precise and quick machining of free-form surfaces to the most-demanding grinding applications, as well as plasma, laser, or waterjet machines.

- ▶ Spline interpolation and B-spline compressor
- ▶ Nano interpolation
- ▶ 5-axis machining and 3D cutter radius compensation
- ▶ Any combination of machining technologies in one process, e.g. for turning on milling machines
- ▶ Spindle coupling and electronic transmission
- ▶ High-speed I/O in interpolator cycle
- ▶ Intelligent, hydraulic axis control and interpolation between hydraulic and electric axes
- ▶ SafeMotion for integrated safety functions



Bosch Rexroth AG, 72 604 EN/2012-04



IndraMotion MTX – technical data

	MTX micro	MTX standard	MTX performance	MTX advanced
Machining technologies				
Turning	●	●	●	●
Milling	●	●	●	●
Drilling	●	●	●	●
Grinding	●	●	●	●
Nibbling, shape cutting	●	●	●	●
Forming	–	●	●	●
Axis control				
Default number of axes	3/4 ●	8 ●	8 ●	8 ●
Max. number of axes	6 ○	8 ●	64 ○	64 ○
Max. number of spindles thereof	2 ●	2 ●	32 ○	32 ○
Default number of independent channels	2 ●	2 ●	3 ●	3 ●
Max. number of independent channels	2 ●	2 ●	12 ○	12 ○
Default number of interpolating axes per channel	4 ●	4 ●	4 ●	4 ●
Max. number of interpolating axes per channel	4 ●	4 ●	8* ○	8* ○
Linear axes	●	●	●	●
Rotary axes	●	●	●	●
Endlessly turning rotary axis	●	●	●	●
Hirth axes	●	●	●	●
Spindle/C-axis switching	●	●	●	●
Max. number of gantry groups per channel	1	4 ○ 2) 6)	8 ○ 2) 3) 6)	8 ○ 2) 3) 6)
Channel-crossing axis transfer	●	●	●	●
Electronic cam	●	●	●	●
Spindle coupling via electronic transmission	●	○ 7)	○ 7)	○ 7)
Software limits	●	●	●	●
Main spindle synchronization	●	○ 1) 2)	○ 2) 2) 3)	○ 2) 2) 3)
Axis-specific jerk limitation	●	●	●	●
Integrated safety system according to EN ISO 13849-1 and EN 62061 (safe stop, safe motion)	–	□	□	□
Interpolation functions				
Linear interpolation	●	●	●	●
Linear interpolation with/without exact stop	●	●	●	●
Circular interpolation with radius and center-point programming, helical interpolation	●	●	●	●
Circular interpolation with tangential entry	●	●	●	●
Rigid tapping cycle	●	○ 1) 6)	○ 1) 6)	○ 1) 6)
Thread cutting	●	○ 1)	○ 1)	○ 1)
Cylinder surface transformation	●	●	●	●

● Default ○ Optional ■ Optional in connection with a PC □ Optional with IndraDrive

¹⁾ "Turning 1" technology package ²⁾ "Milling 1" technology package ³⁾ "Milling 2" technology package ⁴⁾ "Turning" CNC simulation

⁵⁾ "Milling" CNC simulation ⁶⁾ "Shape cutting" technology package ⁷⁾ "Electronic transmission" technology package

*) An export license is required for this option. Per part I C of the export list (EC Regulation) item 2D002.

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	MTX micro	MTX standard	MTX performance	MTX advanced
Machining technologies				
C-axis transformation	●	●	●	●
NC block preview, look-ahead	Max. 1,000 blocks ●	Max. 1,000 blocks ●	Max. 1,000 blocks ●	Max. 1,000 blocks ●
5-axis transformation with TCP programming	–	–	○ ³⁾	○ ³⁾
Jogging with active transformation	–	–	○ ³⁾	○ ³⁾
Spline interpolation, C1 + C2, continuous cubic splines, B-splines, NURBS	●	○ ^{1) 2)}	○ ^{1) 2) 3)}	○ ^{1) 2) 3)}
Nanometer resolution	●	●	●	●
Feed functions				
Feed in mm/min or inch/min	●	●	●	●
Time programming	●	●	●	●
Feed rate per revolution	●	●	●	●
Constant cutting speed	●	○ ¹⁾	○ ¹⁾	○ ¹⁾
Fixed Stop	●	●	●	●
Torque reduction	●	●	●	●
Shifts and compensations				
Mirroring, scaling, rotating	●	●	●	●
Zero offsets	●	●	●	●
Compensations and zero offsets programmable through CPL	●	●	●	●
Placements (FRAMES)	●	○ ²⁾	○ ^{2) 3)}	○ ^{2) 3)}
2D compensation	●	●	●	●
3D cutter radius compensation	–	–	○ ³⁾	○ ³⁾
Compensation with plane switching	●	●	●	●
Tangential tool guidance	●	●	●	●
Tool management				
Integrated flexible tool management	●	●	●	●
Configurable tool database	●	●	●	●
Freely definable tool compensation (length, radius, cutting position compensation, user data)	●	●	●	●
Additive tool compensations (D compensations)	–	●	●	●
Access to tool data from PLC	●	●	●	●
Access to tool data from CNC	●	●	●	●
CNC programming				
Part program development	DIN ISO 66025/ RS 274D	DIN ISO 66025/ RS 274D	DIN ISO 66025/ RS 274D	DIN ISO 66025/ RS 274D
High-level language programming, CPL (customer programming language)	●	●	●	●
Graphical NC simulation	–	○ ^{4) 5)}	○ ^{4) 5)}	○ ^{4) 5)}
CNC user memory	64 MB	256 MB	512 MB	1,024 MB

● Default ○ Optional ■ Optional in connection with a PC □ Optional with IndraDrive

¹⁾ "Turning 1" technology package ²⁾ "Milling 1" technology package ³⁾ "Milling 2" technology package ⁴⁾ "Turning" CNC simulation

⁵⁾ "Milling" CNC simulation ⁶⁾ "Shape cutting" technology package ⁷⁾ "Electronic transmission" technology package

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IndraMotion MTX – technical data

	MTX micro	MTX standard	MTX performance	MTX advanced
CNC programming				
Static memory	4 MB	8 MB	8 MB	16 MB
Max. size of parts program	8 MB	PC hard disk (network file system) ●	PC hard disk (network file system) ●	PC hard disk (network file system) ●
CompactFlash data memory	●	●	●	●
Technology cycles				
Drilling	●	●	●	●
Turning	●	●	●	●
Milling	●	●	●	●
Functions				
Dwell time in seconds	●	●	●	●
Acceleration programming, loop gain programming	●	●	●	●
Homing through NC program	●	●	●	●
Absolute dimension, relative dimension	●	●	●	●
Switching between inch and mm	●	●	●	●
Probe, static/on-the-fly measurement	●	●	●	●
Read process and drive data through sercos	●	●	●	●
Roundings and chamfers	●	●	●	●
Corner rounding with splines	●	●	●	●
Laser power control	●	●	●	●
Digitizing	●	●	●	●
NC block defined by PLC	●	●	●	●
Support for control elements				
Configurable operator screens	–	■	■	■
Cycle header/input support, OEM cycles	–	■	■	■
NC program restart/block search	●	●	●	●
Dry run	●	●	●	●
Retracting from and returning to the contour	●	●	●	●
Retrace function: reversing over the contour	●	○ ⁶⁾	○ ⁶⁾	○ ⁶⁾
PLC programming				
Integrated PLC: IndraLogic	●	●	●	●
Programming languages according to IEC 61131-3 (IL, LD, CFC, ST, SFC, FBD)	●	●	●	●
PLC program memory	2 MB	8 MB	8 MB	16 MB
Number of local/on-board I/Os	32 I/16 O ●	8 I/8 O ●	8 I/8 O ●	8 I/8 O ●
Max. number of local/on-board I/Os	96 I/48 O ○	○	○	○
Number of high-speed inputs/outputs	8 I/8 O ●	8 I/8 O ●	8 I/8 O ●	8 I/8 O ●
Number of fieldbus inputs/outputs in bytes	8,192 I/8,192 O	8,192 I/8,192 O	8,192 I/8,192 O	8,192 I/8,192 O
Multitasking	●	●	●	●
Max. number of PLC tasks	2	16	16	16

● Default ○ Optional ■ Optional in connection with a PC □ Optional with IndraDrive

(1) "Turning 1" technology package (2) "Milling 1" technology package (3) "Milling 2" technology package (4) "Turning" CNC simulation (5) "Milling" CNC simulation (6) "Shape cutting" technology package (7) "Electronic transmission" technology package

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	MTX micro	MTX standard	MTX performance	MTX advanced
Diagnostic and startup tools				
Integrated, system-crossing engineering framework IndraWorks	○	●	●	●
Instructions and error messages in plain text	●	●	●	●
Integrated drive project planning	●	●	●	●
Drive oscilloscope	○	●	●	●
Integrated PLC project planning	○	●	●	●
Logic analyzer	○	●	●	●
Circular shape test	○	●	●	●
NC analyzer	-	●	●	●
Action recorder IndraMotion MTX acr	-	○	○	○
Cycle time analyzer IndraMotion MTX cta	○	○	○	○
Energy analyzer IndraMotion MTX ega	○	○	○	○
Remote condition monitoring system IndraMotion MTX rcm	-	○	○	○
Remote diagnosis I-Remote	-	○	○	○
IndraMotion MTX micro Trainer	●	-	-	-
IndraWorks view 3D	-	○	○	○
IndraWorks machine simulator	-	○	○	○
Open architecture				
Configurable user interface with all standard functions	-	●	●	●
User-specific operator screens	-	●	●	●
Adaptation and integration through standardized interfaces (OPC-UA, XML, ActiveX, .NET)	-	●	●	●
Control hardware and interfaces				
CPU		IndraControl L45	IndraControl L65	IndraControl L85
Digital drive interface sercos	100 Mbaud ●	100 Mbaud ●	100 Mbaud ●	100 Mbaud ●
PROFIBUS master/slave	-	12 Mbaud ●	12 Mbaud ●	12 Mbaud ●
Ethernet TCP/IP	100 Mbaud ●	10/100 Mbaud ●	10/100 Mbaud ●	10/100 Mbaud ●
EtherNet/IP adapter (slave)	-	○	○	○
PROFINET	-	○	○	○
Software and hardware				
Operating system Windows XP/Windows 7	-	○	○	○
Panel PC IndraControl VPP 16/40* - CPU: Intel Celeron P4500, 1.86 GHz or Core I5, 2.4 GHz or Core I7, 2.66 GHz - TFT display: 30.5 cm (12")/38.1 cm (15") - 16 machine control keys	-	○	○	○
Industrial PC IndraControl VPB 40* - CPU: Intel Celeron P4500, 1.86 GHz or Core I5, 2.4 GHz or Core I7, 2.66 GHz	-	○	○	○
Embedded PC IndraControl VEP 40/50* - CPU: Intel Atom, 1.1 GHz, 1 GB RAM - TFT display: 30.5 cm (12")/38.1 cm (15") - 16 machine control keys	-	○	○	○

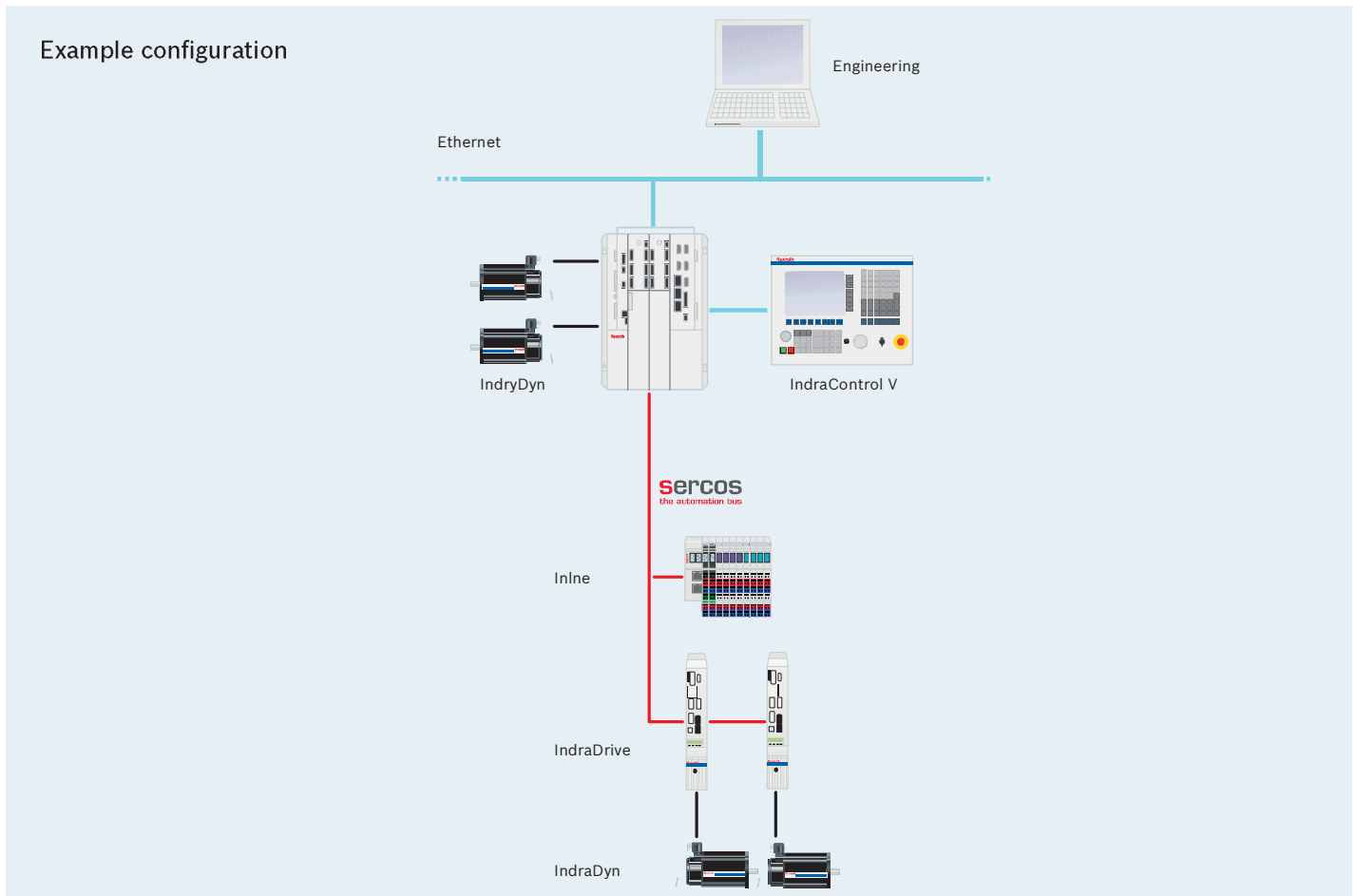
● Default ○ Optional ■ Optional in connection with a PC □ Optional with IndraDrive

(1) "Turning 1" technology package (2) "Milling 1" technology package (3) "Milling 2" technology package (4) "Turning" CNC simulation (5) "Milling" CNC simulation (6) "Shape cutting" technology package (7) "Electronic transmission" technology package

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IndraMotion MTX micro – system configuration



System configuration

Software		Page(s)
Engineering framework	IndraWorks	60–79
Drive control unit with integrated CNC		
Basic device	IndraDrive HCT, IndraDrive HCQ	See the IndraMotion MTX micro brochure
Option modules	Digital I/O	140–175
Standard interfaces	sercos, Ethernet TCP/IP	–
HMI technology		
Visualization device and operator panel	IndraControl VDP80	See "IndraMotion MTX micro" brochure
Drives and motors		
Drive system for additional axes	IndraDrive	See "Drive System Rexroth IndraDrive"
Servo and main spindle motors	IndraDyn	See "Drive System Rexroth IndraDrive"



IndraMotion MTX micro – ordering data

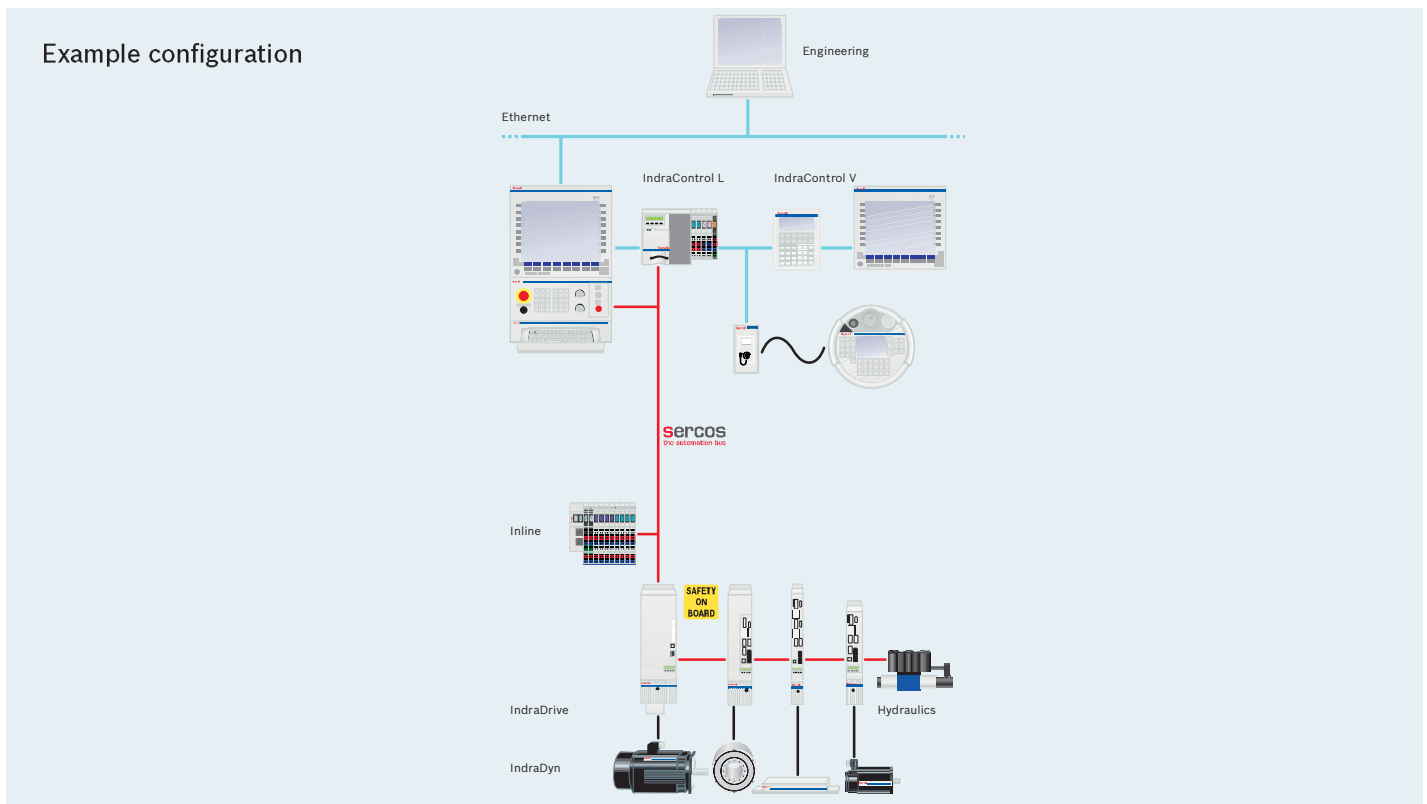
Ordering data for firmware	
Description	Type code
Firmware for IndraMotion MTX micro	FWA-MICRO*-MTX-xxVRS-NN
Ordering data for software and software options	
Description	Type code
Software DVD, Engineering framework IndraWorks	SWA-IWORKS-MTX-xxVRS-D0-DVD
Single license, IndraWorks (Engineering MTX micro)	SWL-IWORKS-MTX-xxVRS-D0-MICRO
Multiple license (25), ndraWorks (Eengineering MTX micro)	SWL-IWORKS-MTX-xxVRS-D0-MICRO*M25
Software DVD, MTX micro trainer	SWA-MICRO*-MTX-xxVRS-A3-DVD**-TRAINER
Ordering data for hardware	
Description	Type code
Basic device 4-axes, 32 I, 16 O	HCQ02.1E-W0025-A-03-B-L8-1S-NN-NN-NN-FW
Basic device 4-axes, 64 I, 32 O	HCQ02.1E-W0025-A-03-B-L8-1S-D1-NN-NN-FW
Basic device 4-axes, 96 I, 48 O	HCQ02.1E-W0025-A-03-B-L8-1S-D1-D1-NN-FW
Basic device 3-axes, 32 I, 16 O	HCT02.1E-W0025-A-03-B-L8-2S-NN-NN-NN-FW
Basic device 3-axes, 64 I, 32 O	HCT02.1E-W0025-A-03-B-L8-2S-D1-NN-NN-FW
Basic device 3-axes, 96 I, 48 O	HCT02.1E-W0025-A-03-B-L8-2S-D1-D1-NN-FW
Turning control panel	VDP80.1FAN-C1-NN-EN
Milling control panel	VDP80.1FBN-C1-NN-EN
Turning control panel, graphite gray	VDP80.1FGN-C1-NN-EN
Milling control panel, graphite gray	VDP80.1FHN-C1-NN-EN
Universal control panel, graphite gray	VDP80.1FKN-C1-NN-EN
Basic device control panel connecting cable	RKB0030

xx = software/firmware version

Current documentation can be found in the Internet at www.boschrexroth.com/mediadirectory.



IndraMotion MTX standard – system configuration



System configuration

Software		Page(s)
Engineering framework	IndraWorks	60 – 79
Control components		
Control hardware	IndraControl L45	122 – 138
Standard interfaces	sercos, PROFIBUS, Ethernet TCP/IP, EtherNet/IP	–
HMI/PC technology		
Visualization devices, controller-based	IndraControl VCP, VCH	84 – 91
Visualization devices, embedded PC	IndraControl VEP	92 – 97
Visualization devices, industrial PC	IndraControl VPP, IndraControl VPB, VDP	100 – 114
I/O modules		
Distributed input/output modules in IP20	Inline	140 – 175
Distributed input/output modules in IP67	IndraControl S67	188 – 201
Drives and motors		
Drive system	IndraDrive and IndraDyn	See "Drive System Rexroth IndraDrive"

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IndraMotion MTX standard – ordering data

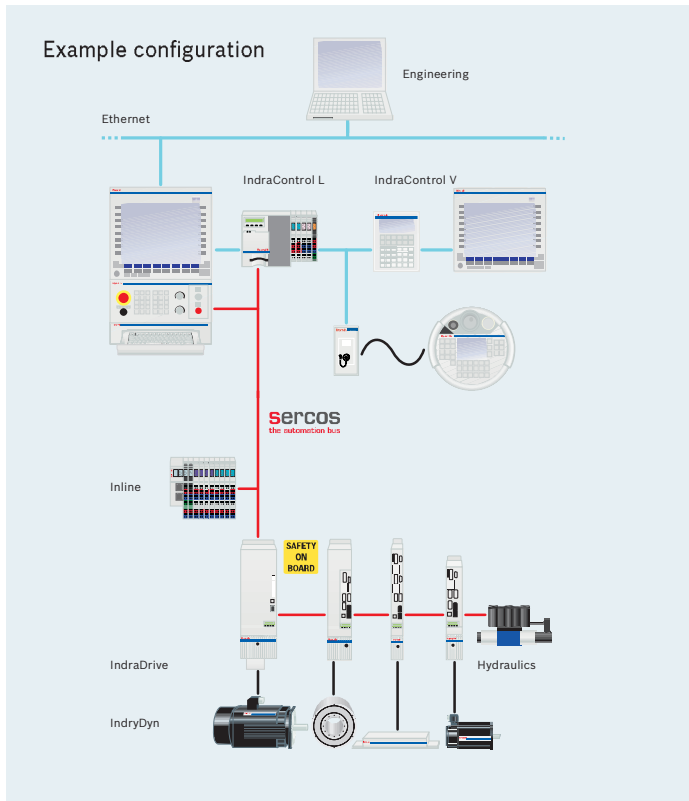
Ordering data for firmware	
Description	Type code
Firmware for IndraMotion MTX standard	FWA-CML45*-MTX-xxVRS-NN
Ordering data for software and software options	
Description	Type code
Software DVD, Engineering framework IndraWorks	SWA-IWORKS-MTX-xxVRS-D0-DVD
Single license, IndraWorks (Operation)	SWL-IWORKS-MTX-xxVRS-D0-OPD
Multiple license (25), IndraWorks (Operation)	SWL-IWORKS-MTX-xxVRS-D0-OPD*M25
Single license, IndraWorks (Operation and Engineering)	SWL-IWORKS-MTX-xxVRS-D0-OPDENG
Multiple license (25), IndraWorks (Operation and Engineering)	SWL-IWORKS-MTX-xxVRS-D0-OPDENG*M25
Single license, IndraWorks (Offline Programming)	SWL-IWORKS-MTX-xxVRS-D0-WORKSTATION
Multiple license (25), IndraWorks (Offline Programming)	SWL-IWORKS-MTX-xxVRS-D0-WORKSTATION*M25
Single license, IndraWorks (OPC server)	SWL-IWORKS-MTX-xxVRS-D0-COM
Multiple license (25), IndraWorks (OPC server)	SWL-IWORKS-MTX-xxVRS-D0-COM*M25
Option, technology package – turning 1	SWS-MTX***-RUN-NNVRS-D0-TUR1
Option, technology package – milling 1 (DE/EN)	SWS-MTX***-RUN-NNVRS-D0-BAZ1
Option, electronic gear and system axis coupling	SWS-MTX***-RUN-NNVRS-D0-GEAR
Option, action recorder	SWS-MTX***-RUN-NNVRS-D0-ACR
Option, technology package – shape cutting	SWS-MTX***-RUN-NNVRS-D0-SHC1
Option, cycle time analyzer	SWS-MTX***-RUN-NNVRS-D0-CTA*ANALYZER
Option, cycle time analyzer (on dongle)	SWS-MTX***-RUN-NNVRS-D0-CTA*ANALYZER-DGL
Option, energy analyzer	SWS-MTX***-RUN-NNVRS-D0-EGA*ANALYZER
Option, energy analyzer (on dongle)	SWS-MTX***-RUN-NNVRS-D0-EGA*ANALYZER-DGL
Option, efficiency workbench recorder (for CTA and EGA)	SWS-MTX***-RUN-NNVRS-D0-EWB*RECORDER
Option, remote condition monitoring runtime	SWS-MTX***-RUN-NNVRS-D0-RCM
Option, NC simulation, milling	SWS-MTX***-RUN-NNVRS-D0-SIM*M
Option, NC simulation, turning	SWS-MTX***-RUN-NNVRS-D0-SIM*T
Ordering data for hardware	
Description	Type code
IndraControl L45 with sercos, PROFIBUS	CML45.1-3P-504-NA-NNNN-NW

xx = software/firmware version

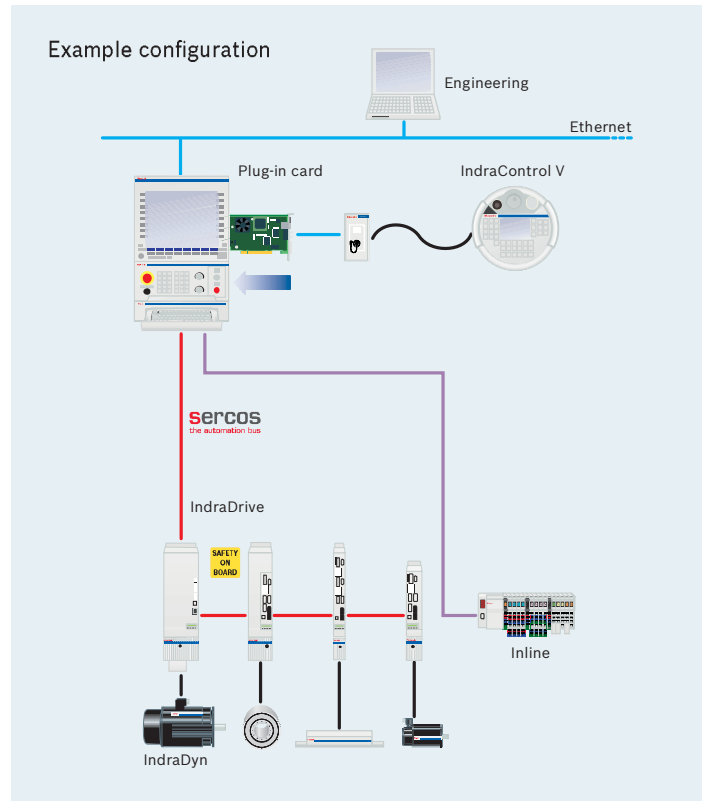
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IndraMotion MTX performance/advanced – system configuration

Controller-based



PC-based



System configuration

Software		Page(s)
Engineering framework	IndraWorks	60 – 79
Control components		
Control hardware	IndraControl L65, IndraControl L85	122 – 138
Standard interfaces	sercos, PROFIBUS, Ethernet TCP/IP, EtherNet/IP	–
HMI/PC technology		
Visualization devices, controller-based	IndraControl VCP, VCH	84 – 91
Visualization devices, embedded PC	IndraControl VEP	92 – 97
Visualization devices, industrial PC	IndraControl VPP, VPB, VDP	100 – 114
I/O modules		
Distributed input/output modules in IP20	Inline	140 – 175
Distributed input/output modules in IP67	IndraControl S67	188 – 201
Drives and motors		
Drive system	IndraDrive and IndraDyn	See "Drive System Rexroth IndraDrive"



IndraMotion MTX performance/advanced – ordering data

Ordering data for firmware

Description	Type code
Firmware for IndraMotion MTX performance	FWA-CMP60*-MTX-xxVRS-NN, FWA-CML65*-MTX-xxVRS-NN
Firmware for IndraMotion MTX advanced	FWA-CMP70*-MTX-xxVRS-NN, FWA-CML85*-MTX-xxVRS-NN

Ordering data for software and software options

Description	Type code
Software DVD, Engineering framework IndraWorks	SWA-IWORKS-MTX-xxVRS-D0-DVD
Single license, IndraWorks (Operation)	SWL-IWORKS-MTX-xxVRS-D0-OPD
Multiple license (25), IndraWorks (Operation)	SWL-IWORKS-MTX-xxVRS-D0-OPD*M25
Single license, IndraWorks (Operation and Engineering)	SWL-IWORKS-MTX-xxVRS-D0-OPDENG
Multiple license (25), IndraWorks (Operation and Engineering)	SWL-IWORKS-MTX-xxVRS-D0-OPDENG*M25
Single license, IndraWorks (Offline Programming)	SWL-IWORKS-MTX-xxVRS-D0-WORKSTATION
Multiple license (25), IndraWorks (Offline Programming)	SWL-IWORKS-MTX-xxVRS-D0-WORKSTATION*M25
Single license, IndraWorks (OPC server)	SWL-IWORKS-MTX-xxVRS-D0-COM
Multiple license (25), IndraWorks (OPC server)	SWL-IWORKS-MTX-xxVRS-D0-COM*M25
Option, technology package – turning 1	SWS-MTX***-RUN-NNVRS-D0-TUR1
Option, technology package – milling 1 (DE/EN)	SWS-MTX***-RUN-NNVRS-D0-BAZ1
Option, technology package – milling 2 (DE/EN)	SWS-MTX***-RUN-NNVRS-D0-BAZ2
Option, electronic gear and system axis coupling	SWS-MTX***-RUN-NNVRS-D0-GEAR
Option, action recorder	SWS-MTX***-RUN-NNVRS-D0-ACR
Option, technology package – shape cutting	SWS-MTX***-RUN-NNVRS-D0-SHC1
Option, cycle time analyzer	SWS-MTX***-RUN-NNVRS-D0-CTA*ANALYZER
Option, cycle time analyzer (on dongle)	SWS-MTX***-RUN-NNVRS-D0-CTA*ANALYZER-DGL
Option, energy analyzer	SWS-MTX***-RUN-NNVRS-D0-EGA*ANALYZER
Option, energy analyzer (on dongle)	SWS-MTX***-RUN-NNVRS-D0-EGA*ANALYZER-DGL
Option, efficiency workbench recorder (for CTA and EGA)	SWS-MTX***-RUN-NNVRS-D0-EWB*RECORDER
Option, remote condition monitoring runtime	SWS-MTX***-RUN-NNVRS-D0-RCM
Option, NC simulation, milling	SWS-MTX***-RUN-NNVRS-D0-SIM*M
Option, NC simulation, turning	SWS-MTX***-RUN-NNVRS-D0-SIM*T

Ordering data for hardware

Description	Type code
Basic device IndraControl VP with plug-in card IndraControl P60	CFG-VPN01A1-GC-NN-NN
Basic device IndraControl VP with plug-in card IndraControl P60 and high-speed I/O interface (8 I/8 O)	CFG-VPN01A1-GC-IC-NN
Basic device IndraControl VP with plug-in card IndraControl P70	CFG-VPN01A1-WC-NN-NN
Basic device IndraControl VP with plug-in card IndraControl P70 and high-speed I/O interface (8 I/8 O)	CFG-VPN01A1-WC-NO-NN
IndraControl L65 with sercos, PROFIBUS	CML65.1-3P-504-NA-NNNN-NW
IndraControl L85 with sercos, PROFIBUS	CML85.1-3P-504-NA-NNNN-NW

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