Product Overview
Intelligent Servo Drives
Intelligent Motors

Your
Next
Intelligent
Move

TECHNOSOFT
MOTION TECHNOLOGY
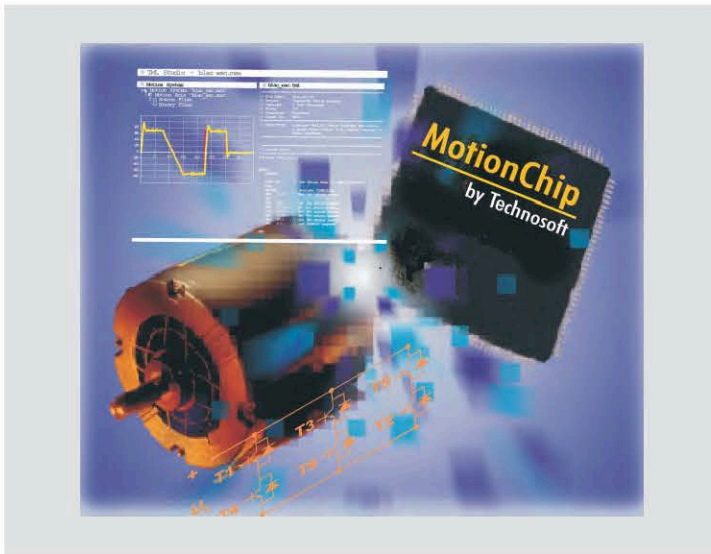
An Innovative Company

Technosoft is a leading DSP Motion Control technology company, specialized in the design and manufacture of motion control products and custom motion systems.

Technosoft's focus on innovative design, using the latest control technology has culminated in the realization of MotionChip™ - a dedicated solution for motion control, embedded today in a broad range of intelligent servo drive products.

Technosoft products use modularity both at hardware and software levels. This provides highly flexible and adaptable dedicated solutions that can easily be prototyped to meet specific OEM needs.

The automotive, medical, robotics, textile and factory automation industries have effectively used Technosoft's motor control expertise in the fast development of specific products for highly demanding applications.


Your Benefits

Compact and cost effective intelligent drives
- **All in one** : controller and drive in one unit
- **One for all** : same drive for DC, step, brushless or linear motors
- **Distributed intelligence** with :

CANopen   **CAN**open   EtherCAT   Ether**CAT**

TMLCAN   (TML)   Ethernet   ETHERNET

- **Advanced digital motion control** with MotionChip™ DSP technology :
  -PVT, S-curves, electronic camming, 3D motion commands
- **Easy implementation** with various motion libraries for PC / PLC
- **Graphical programming** with EasyMotion Studio
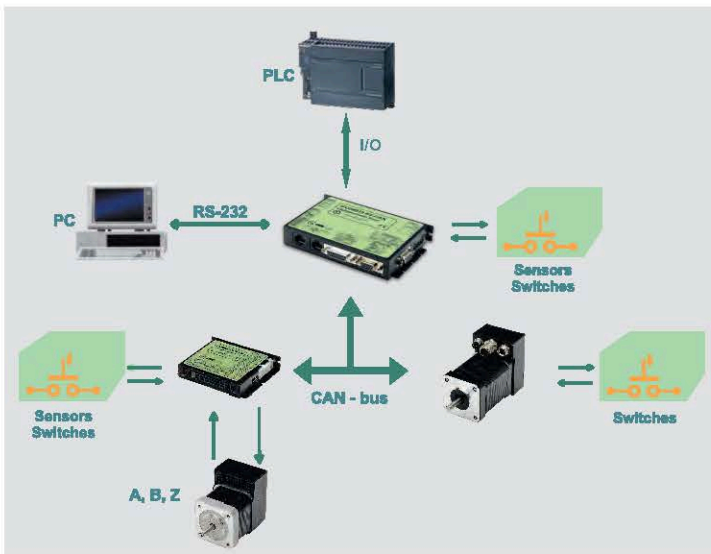
Intelligent Drives and Motors

Technosoft Intelligent Servo Drives belong to a new family of fully digital servo drives with embedded intelligence, based on the latest DSP controller technology. These state-of-the-art intelligent drives offer features usually found only in high-power servo-amplifiers:

- Software configurability to drive AC or DC brushless, DC brush or step motors

- Multi-mode motion operation: contouring, profiling, gearing, electronic camming

- Stand-alone or multi-axis configuration

- Typical feedback devices: tacho generators, incremental encoders, digital or linear Halls

- Distributed control over CAN, CANopen, EtherCAT, Ethernet

Family	iPOS Line						
Drive	IPOS3602 VX / MX Intelligent Servo Drives 75 W	IPOS3604 VX / MX Intelligent Servo Drives 144 W	IPOS3602/04 BX / HX Intelligent Servo Drives 75 / 144 W	IPOS4808 VX / MY Intelligent Servo Drives 400 W	IPOS4808 MY CAN/ CAT-STO COMBO Intelligent Servo Drive 400 W	IPOS4808 BX Intelligent Servo Drive 400 W	IPOS8010 BX Intelligent Servo Drive 400 W
Controlled Motors							
• DC	✓	✓	✓	✓	✓	✓	✓
• Step (up to 512 µsteps)	✓	✓	✓	✓	✓	✓	✓
• Brushless (AC & DC)	✓	✓	✓	✓	✓	✓	✓
• Linear	✓	✓	✓	✓	✓	✓	✓
Electrical Parameters							
Bus Voltage	12-36 V	12-36 V	12-36 V	12-48 V	12-48 V	12-48 V	12-80 V
Output Current - Nominal	2 A	4 A	2 / 4 A	8 A	8 A	8 A	10 A
Peak Current	3.2 A	10 A	3.2 / 10 A	20 A	20 A	20 A	20 A
Communication							
RS-232	✓	✓	✓	✓	✓	✓	✓
CAN / CANopen	✓	✓	✓	✓	✓	✓	✓
EtherCAT	Optional	Optional		Optional	CAT only	✓	✓
TMLCAN	✓	✓	✓	✓	✓	✓	✓
Motion Control							
Control Functions Position, Speed, Torque	✓	✓	✓	✓	✓	✓	✓
Electronic Gearing	✓	✓	✓	✓	✓	✓	✓
Electronic Camming	✓	✓	✓	✓	✓	✓	✓
Inputs / Outputs							
Analog Inputs	2 (VX) / 1 (MX)	2 (VX) / 1 (MX)	2	2	2	2	2
Digital Inputs	5	5	5	8	6	6	4
Digital Outputs	4 (VX) / 3 (MX)	4 (VX) / 3 (MX)	4	6 (VX) / 5 (MY)	5	5	4
Sensors							
Quadrature Incremental Encoder	✓	✓	✓	✓	✓	✓	✓
Digital Hall	✓	✓	✓	✓	✓	✓	✓
Linear Hall	✓	✓		✓	✓	✓	✓
Sin / Cos Encoder	✓	✓	✓	✓	✓	✓	✓
SSI Encoder				MY only	✓	✓	Optional
BISS Encoder				MY only	✓	✓	Optional
Resolver							Optional
Others							
Size (mm)	56 x 29 x 7 (VX) 55 x 26 x 13 (MX)	56 x 29 x 7 (VX) 55 x 26 x 13 (MX)	80 x 55 x 16 (BX) 73 x 45 x 16 (HX)	56 x 44 x 7 (VX) 60 x 44 x 12 (MY)	60 x 44 x 21 (CAN) 64 x 44 x 21 (CAT)	89 x 77 x 17 (CAN) 103 x 71 x 17 (CAT)	139 x 94 x 25
Weight (g)	10 (VX) / 8 (MX)	10 (VX) / 8 (MX)	70 (VX) / 48 (HX)	18 (VX) / 20 (MY)	43 / 45	110 / 120	240
Ambient Temp. Range (*)	0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C

(*) Extended temperatures available on request

| iPOS Line		iMOT Line					Family	
IMOTIONCUBE Intelligent Servo Drive 1600 W	IPOS360x SX Multi-axis Motion System 4 / 6 x 144 W	IMOT17xS Intelligent Step Motors 0.3 Nm	32xx_BX4 Intelligent Brushless Motors 0.056-0.097 Nm	IMOT17xB Intelligent Servo Motors 0.1-0.3 Nm	IMOT23xS Intelligent Step Motors 1-1.8 Nm	IMOT24xB Intelligent Servo Motors 0.25-0.75 Nm		
✓	✓						• DC	Controlled Motors
✓	✓	✓	✓		✓		• Step (up to 512 µsteps)	
✓	✓			✓		✓	• Brushless (AC & DC)	
✓	✓						• Linear	
12-80 V	12-36 V	12	12-24 V	12-48 V	12-48 V	12-48 V	Bus Voltage	Electrical Parameters
20 A	4 x 4 A	0.3 Nm	0.056-0.096 Nm	0.1-0.3 Nm	1-1.5 Nm	0.25-0.75 Nm	Rated Torque	
40 A	4 x 10 A	0.5 Nm	0.062-0.110 Nm	0.3-0.9 Nm	1-1.8 Nm	0.75-2.25 Nm	Peak Torque	
✓	✓	✓	✓	✓	✓	✓	RS-232	Communication
	✓	✓	✓	✓	✓	✓	CAN / CANopen	
	Ethernet /✓	Optional	✓	✓	Optional	✓	EtherCAT	
✓	✓	✓	✓	✓	✓	✓	TMLCAN	
✓	✓	✓	✓	✓	✓	✓	Control Functions Position, Speed, Torque	Motion Control
✓	✓	✓	✓	✓	✓	✓	Electronic Gearing	
✓	✓	✓	✓	✓	✓	✓	Electronic Camming	
2	4/6 x 2	1	1	1	1	1	Analog Inputs	Inputs / Outputs
4	4/6 x 5	4	4	4	4	4	Digital Inputs	
4	4/6 x 4	2	2	2	2	2	Digital Outputs	
✓	✓	Internal	Internal	Internal	Internal	Internal	Quadrature Incremental Encoder	Sensors
✓	✓						Digital Hall	
✓	✓						Linear Hall	
✓	✓						Sin / Cos Encoder	
Optional							SSI Encoder	
Optional							BISS Encoder	
Optional							Resolver	
60 x 40 x 20	100 x 98 x 37 (4) / 160 x 122 x 37 (6)	51 + 65 x x 43 x 57	32 x 67+93 x 67 x 46	58 + 91 x x 43 x 57	68 + 93 x x 58 x 73	77 + 122 x x 61 x 61	Size (mm)	Others
45	125 (4) / 200 (6)	285-600	370-460	325-700	700-1100	850-1650	Weight (g)	
0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C	Ambient Temp. Range (*)	

(*) Extended temperatures available on request

| Family	Plug-in		Open frame	Closed frame			Multi-axes	Gearheads
Drive	PIM2401/03 Servo Modules 25/75 W	ISCMxx05 Servo Modules 200/400 W	ISCM4805 DIN Servo Modules 200/400 W	IBL2401/03 Servo Minidrives 25/75 W	IDM240/640 Servo Drives 240/640 W	IDM3000 Servo Drive 3 kW	TMAC-3D Controller & Drive 400 W	GP Gearheads up to 90 Nm
Controlled Motors								
• DC	✔	✔	✔	✔	✔	✔	✔	
• Step (up to 256 µsteps)	✔	✔	✔	✔	✔		✔	
• Brushless (AC & DC)	✔	✔	✔	✔	✔	✔	✔	
• Linear	✔	✔	✔	✔	✔	✔	✔	
Electrical Parameters								
Bus Voltage	6/12-24 V	12-48/80 V	12-48/80 V	6/12-24 V	12-48/80 V	160-325 V	12-48 V	
Output Current - Nominal	1 / 3 A	5 A	5 A	1 / 3 A	5 / 8 A	10 A	8 A	Rated Torque up to 90 Nm
Peak Current	3 / 6 A	16 A	16 A	3 / 6 A	16 A	30 A	16 A	Peak Torque up to 150 Nm
Communication								
RS-232	✔	✔	✔	✔	✔ / RS-485	✔	✔	
CAN / CANopen	✔	✔	✔	Optional	✔	✔	✔	
EtherCAT					✔			
TMLCAN	✔	✔	✔	Optional	✔	✔	✔	
Motion Control								
Control Functions Position, Speed, Torque	✔	✔	✔	✔	✔	✔	✔	
Electronic Gearing	✔	✔	✔	✔	✔	✔	✔	
Electronic Camming	✔	✔	✔	✔	✔	✔	✔	
Inputs / Outputs								
Analog Inputs	2	2	2	2	2	2	2	
Digital Inputs	5	7 (shared)	8 (shared)	5	7	8	8	
Digital Outputs	2	3 (shared)	6 (shared)	2	6	6	5	
Sensors								
Quadrature Incremental Encoder	✔	✔	✔	✔	✔	✔	✔	
Digital Hall	✔	✔	✔	✔	✔	✔	✔	
Linear Hall	✔	✔	✔	✔			Optional	
Sin / Cos Encoder						Optional	Optional	
SSI Encoder						✔	Optional	
BISS Encoder							Optional	
Resolver						✔	Optional	
Others								
Size (mm)	49x44x14 (01) 59x42x20 (03)	80x50x17	112x70x25	60x44x16 (01) 65x58x19 (03)	136x95x26	200x130x x50	89x71x17	40 / 57 / 86 Diameter
Weight (g)	15 (01) 25 (03)	34	87	60 (01) 67 (03)	280	900	280	Up to 4500
Ambient Temp. Range (*)	0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C	0 - 40 °C

(*) Extended temperatures available on request
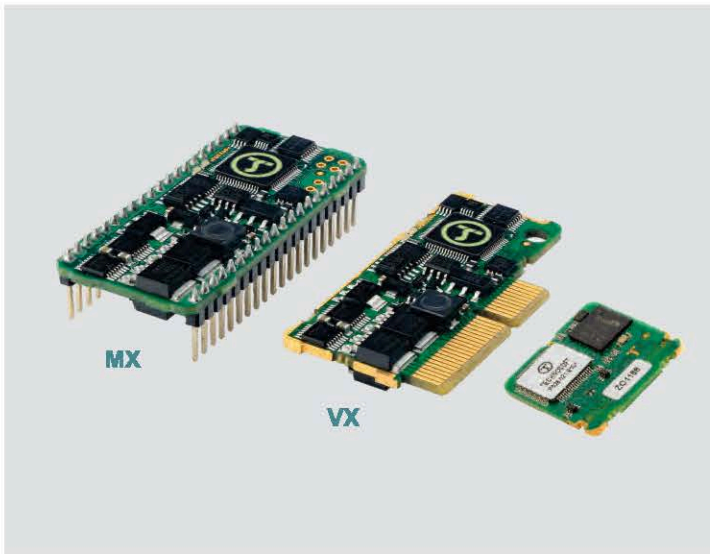
iPOS3602 VX / iPOS3602 MX — 36 V, 2 A
Intelligent Servo Drives — 75 W

- Suitable for rotary, linear brushless, DC brush and step motors
- 12-36 V power supply (motor and logic)
- 2 A continuous, 3.2 A peak current
- Digital inputs (5), digital outputs (4 VX model / 3 MX model) and analog inputs (2 VX model / 1 MX model)
- High resolution stepper control up to 512 microsteps / step
- Quadrature and Sin / Cos encoders, Hall sensors or linear Halls
- RS-232 and CAN (TMLCAN and CANopen protocols)
- Optional EtherCAT extension with CoE protocol
- Mounting: vertical (VX model), horizontal (MX model)
- Size: 56 x 29 x 7 mm (VX model) / 55 x 26 x 13 mm (MX model)

Ordering Information:
P028.001.E001 IPOS3602 VX-CAN Servo Drive, 36 V, 2 A, CAN
P028.001.E101 IPOS3602 MX-CAN Servo Drive, 36 V, 2 A, CAN
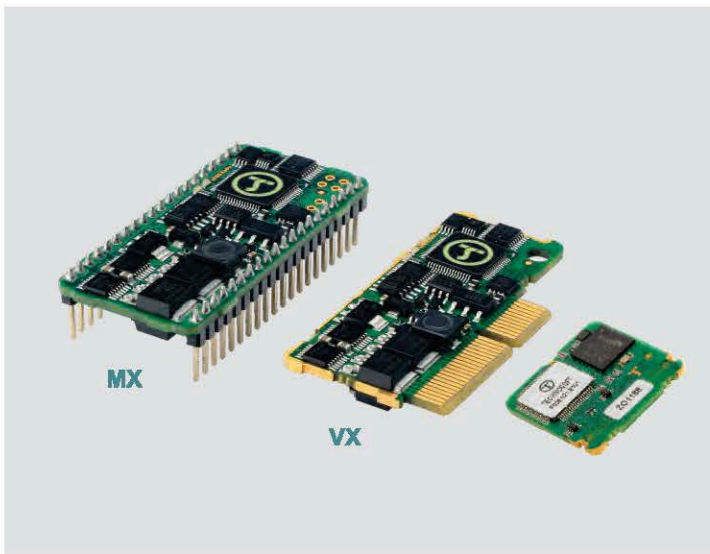
iPOS3604 VX / iPOS3604 MX — 36 V, 4 A
Intelligent Servo Drives — 144 W

- Suitable for rotary, linear brushless, DC brush and step motors
- 12-36 V power supply (motor and logic)
- 4 A continuous, 10 A peak current
- Digital inputs (5), digital outputs (4 VX model / 3 MX model) and analog inputs (2 VX model / 1 MX model)
- High resolution stepper control up to 512 microsteps / step
- Quadrature and Sin / Cos encoders, Hall sensors or linear Halls
- RS-232 and CAN (TMLCAN and CANopen protocols)
- Optional EtherCAT extension with CoE protocol
- Mounting: vertical (VX model), horizontal (MX model)
- Size: 56 x 29 x 7 mm (VX model) / 55 x 26 x 13 mm (MX model)

Ordering Information:
P028.002.E001 iPOS3604 VX-CAN Servo Drive, 36 V, 4 A, CAN
P028.002.E101 iPOS3604 MX-CAN Servo Drive, 36 V, 4 A, CAN

iPOS3602 BX / HX ; iPOS3604 BX / HX — 36 V, 2/4 A
Intelligent Servo Drives — 75/144 W

- Suitable for rotary, linear brushless, DC brush and step motors
- 12-36 V single power supply
- Continuous current: 2 A (iPOS3602 BX / HX) or 4 A (iPOS3604 BX / HX)
- Peak current: 3.2 A (iPOS3602 BX / HX) or 10 A (iPOS3604 BX / HX)
- Digital inputs (5) / outputs (4) and analog inputs (2)
- High resolution stepper control up to 512 microsteps / step
- Quadrature and Sin / Cos encoders, Hall sensors or linear Halls
- RS-232 and CAN (TMLCAN and CANopen protocols)

- Size: 80 x 55 x 16 mm (BX model) / 73x45x16 mm (HX model)

Ordering Information:
P028.001.E201 IPOS3602 BX-CAN Servo Drive, 36 V, 2 A, CAN
P028.002.E201 IPOS3604 BX-CAN Servo Drive, 36 V, 4 A, CAN
P028.001.E501 iPOS3602 HX-CAN Servo Drive, 36 V, 2 A, CAN
P028.002.E501 iPOS3604 HX-CAN Servo Drive, 36 V, 4 A, CAN

MY

VX
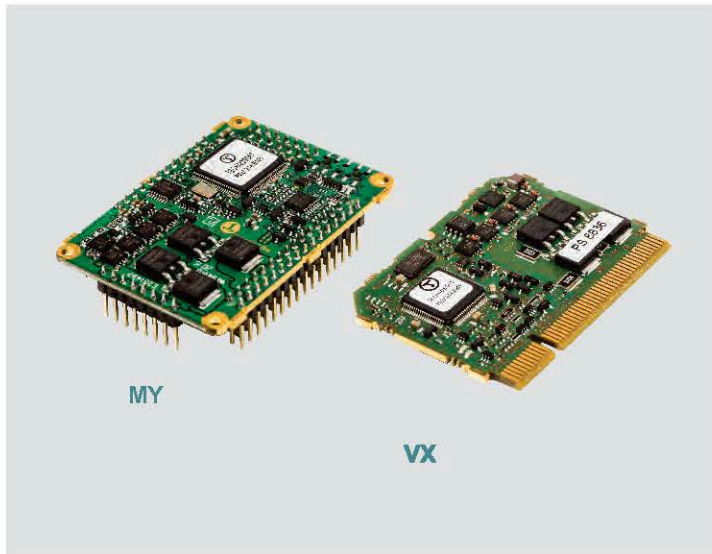
iPOS4808 VX / iPOS4808 MY
Intelligent Servo Drives

48 V, 8 A
400 W

- Suitable for DC brushed, brushless, step or linear motors
- 12-48 V motor power supply, 12-36 V logic supply
- 8 A continuous, 20 A peak current
- Digital inputs (8) / outputs (6 VX model / 6 MY model) and analog inputs (2)
- High resolution stepper control up to 512 microsteps / step
- Quadrature and Sin / Cos encoders, Hall sensors or linear Halls
- Optional feedback extension for: SSI and BiSS encoders
- RS-232 and CAN (TMLCAN and CANopen protocols)
- Optional EtherCAT extension with CoE protocol
- Mounting: vertical (VX model), horizontal (MY model)
- Size: 56 x 44 x 7 mm (VX model) / 60 x 44 x 12 (MY model)

CANopen   TML   EtherCAT

Ordering Information:
P027.014.E001 iPOS4808 VX-CAN Servo Drive, 48 V, 8 A, CAN
P027.214.E101 iPOS4808 MY-CAN Servo Drive, 50 V, 8 A, CAN

iPOS4808 MY CAN / CAT - STO COMBO
Intelligent Servo Drive

48 V, 8 A
400 W

- Suitable for DC brushed, brushless, step or linear motors
- 12-48 V motor power supply, 12-36 V logic supply
- 8 A continuous, 20 A peak current
- Digital inputs (6) / outputs (5) and analog inputs (2)
- High resolution stepper (512 µsteps) or step-less control
- Quadrature and Sin/Cos encoders, digital and linear Halls
- Dual feedback and absolute encoders support (SSI and BiSS)
- STO (Safe Torque Inputs) capability
- RS-232, TMLCAN and CANopen, CoE protocol for the EtherCAT version
- Size: 60/64 (CAN/CAT Combo) x 44 x 21 mm

CANopen   TML   EtherCAT

Ordering Information:
P027.314.E111 iPOS4808 MY-CAN-STO Combo, 48 V, 8 A, CAN, STO
P027.314.E121 iPOS4808 MY-CAT-STO Combo, 48 V, 8 A, EtherCAT, STO

iPOS4808 BX CAN / CAT
Intelligent Servo Drive

48 V, 8 A
400 W

- Suitable for DC brushed, brushless, step or linear motors
- 12-48 V motor power supply, 12-36 V logic supply
- 8 A continuous, 20 A peak current
- Digital inputs (6) / outputs (5) and analog inputs (2)
- High resolution stepper control up to 512 microsteps / step
- Quadrature and Sin / Cos encoders, Hall sensors or linear Halls
- Dual feedback and absolute encoder support (SSI and BISS)
- RS-232, CAN (TMLCAN and CANopen protocols) and EtherCAT extension with CoE protocol
- Size: 89 x 77 x 17 mm (CAN) / 103 x 71 x 17 mm (CAT)

CANopen   TML   EtherCAT

Ordering Information:
P027.214.E201 iPOS4808 BX-CAN Servo Drive, 48 V, 8 A, CAN
P027.214.E221 iPOS4808 BX-CAT Servo Drive, 48 V, 8 A, EtherCAT

iPOS8010 BX CAN / CAT
Intelligent Servo Drive

80 V, 10 A
800 W

- Suitable for DC brushed, brushless, step or linear motors
- 12-80 V motor power supply, 12-36 V logic supply
- 10 A continuous, 20 A peak current
- Digital inputs (4) / outputs (4) and analog inputs (2)
- High resolution stepper control up to 256 microsteps / step
- Quadrature and Sin / Cos encoders, Hall sensors or linear Halls
- Dual feedback and absolute encoder support (SSI and BiSS)
- 2 Safe Torque Off (STO) inputs
- RS-232, CAN (TMLCAN and CANopen protocoles) and EtherCAT extension with CoE protocol
- Size: 139 x 94 x 16 mm

CANopen   TML   EtherCAT

Ordering Information:
P029.025.E201 IPOS8010 BX-CAN Servo Drive, 80 V, 10 A, CAN
P029.025.E221 IPOS8010 BX-CAT Servo Drive, 80 V, 10 A, EtherCAT

iMOTIONCUBE
Intelligent Servo Drive

80 V, 20 A
1,6 kW

- Suitable for DC brushed, brushless, step or linear motors
- 12-80 V motor power supply, 12-36 V logic supply
- 20 A continuous, 40 A peak current
- Digital inputs (4) / outputs (4) and analog inputs (2)
- High resolution stepper control up to 512 microsteps / step
- RS-232 and CAN (TMLCAN and CANopen protocols)
- Size: 60 x 40 x 20 mm

CANopen   TML

Ordering Information:
P025.126.E101 iMOTIONCUBE Intelligent Drive 80V 20A CAN
P025.126.E201 iMOTIONCUBE BX Intelligent Drive 80V 20A CAN with integrated connectors
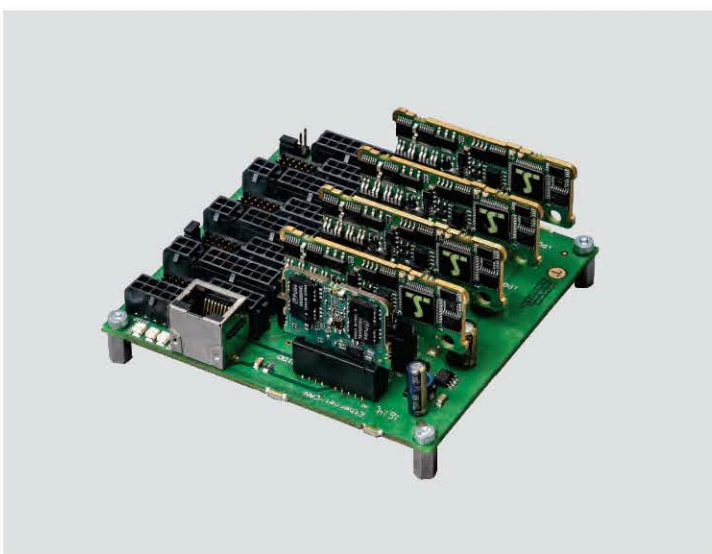
iPOS360x SX/SY
Multi-axis Motion System

12-36 V
4/6 x144 W

- Suitable for DC brushed, brushless, step or linear motors
- Can be supplied from 1 to 6 axis of any combination of iPOS3602 and iPOS3604
- iPSO360x SX systems with up to 4 axis for RS232, TMLCAN, CANopen or Ethernet
- iPSO360x SY systems with up to 6 axis for RS232, TMLCAN, CANopen or EtherCAT
- 12-36 V power supply (motor and logic separately)
- 2A continuous / 3.3 A peak, respectively 4 A continuous / 10 A peak per axis
- Size: 100 x 98 x 36 mm (4x) / 160 x 122 x 36 mm (6x)

CANopen   EtherCAT   TML   ETHERNET

P028.002.E884 IPOS360x MBX-CAN motherboard, 4 axes IPOS VX-CAN
P038.022.E001 ENET-VX Ethernet plug-in Interface
P028.023.E000 IPOS360x MBX6-CAT motherboard for 6 axes IPOS VX-CAT, G3
P038.021.E001 ECAT-VX EtherCAT plug-in Interface
P028.024.E006 IPOS360x MBX6-CAN motherboard for 6 axes IPOS VX-CAN, G3

iMOT Line

iMOT17xS
Intelligent Step Motors
12-48 V
0.3 Nm

- Fully programmable intelligent step motors due to TML instruction set
- 12-48 V motor power supply, 12-36 V logic supply
- 3 motor sizes offering from 0.2 to 0.4 Nm
- Minimal power consumption due to true servo closed loop operation
- Integrated position sensor with 4096 counts/rotation
- Programmable digital I/Os and analogue inputs
- RS-232, CANopen, EtherCAT and Ethernet optional

CANopen   EtherCAT   ETHERNET   TML

Ordering Information:
P036.1x1.E120 iMOT17xS XM-CAN Intelligent Step Motor

32xx_BX4
Intelligent Brushless Motors
12-24 V
.056-.097 Nm

- Fully programmable intelligent brushless motors due to TML instruction set
- 12-24 V power supply
- Four different types of gearboxes are available
- Integrated position sensor with 4096 counts/rotation
- Programmable digital I/Os and analogue inputs
- RS-232 and CAN (TMLCAN and CANopen protocols) and EtherCAT extension with CoE protocol

CANopen   EtherCAT   TML

Ordering Information:
P026.014.E420   3242_BX4 CAN Intelligent Brushless Motor, CAN
P026.014.E422   3242_BX4 ECAT Intelligent Brushless Motor, EtherCAT
P026.024.E420   3268_BX4 CAN Intelligent Brushless Motor, CAN
P026.024.E422   3268_BX4 ECAT Intelligent Brushless Motor, EtherCAT

iMOT17xB
Intelligent Brushless Servo Motors
12-48 V
0.1-0.3 Nm

- Fully programmable intelligent brushless motors due to TML instruction set
- 12-48 V motor power supply, 12-36 V logic supply
- 3 motor sizes offering from 0.1 to 0.3 Nm @ 3'000 rpm
- Torque up to 18 Nm when provided with the GP gearheads
- Integrated position sensor with 4096 counts/rotation
- Programmable digital I/Os and analogue inputs
- RS-232, CANopen, EtherCAT, TMLCAN,and Ethernet optional

CANopen   EtherCAT   TML   ETHERNET

Ordering Information:
P042.1x1.E120 iMOT17xB XM-CAN Intelligent Brushless Motor
P042.1x1.E320 iMOT17xB TM-CAN Intelligent Brushless Motor
P042.1x1.E322 iMOT17xB TM-CAT Intelligent Brushless Motor

IMOT23xS
Intelligent Step Motors

12-48 V
1-1.8 Nm

- Fully programmable intelligent step motors due to TML instruction set
- 12-48 V motor power supply, 12-36 V logic supply
- 3 motor sizes offering from 1 to 1.8 Nm
- Minimal power consumption due to true servo closed loop operation
- Integrated position sensor with 4096 counts/rotation
- Programmable digital I/Os and analogue inputs
- RS-232 and CAN (optional EtherCAT and Ethernet communication busses)

CANopen **TML**

Ordering information:
P036.232.E120 IMOT232S XM-CAN Intelligent Step Motor, CAN
P036.233.E120 IMOT233S XM-CAN Intelligent Step Motor, CAN

iMOT24xB
Intelligent Brushless Servo Motors

48 V
0.25-0.75 Nm

- Intelligent brushless motors with embedded motion controller
- 12-48 V motor power supply, 12-36 V logic supply
- 3 motor sizes offering from 0.25 to 0.75 Nm @ 3'000 rpm
- Torque up to 91 Nm when provided with the GP gearheads
- Integrated position sensor with 4096 counts/rotation
- Programmable digital I/Os and analogue inputs
- RS-232 and CAN (optional EtherCAT and Ethernet communication busses)

CANopen **TML**

Ordering information:
P042.2x1.E120 IMOT24xB XM-CAN Intelligent Brushless Motor

Gearheads

GP
High Efficiency Gearheads

- Torque output 5 to 90 Nm
- All steel construction with ratios 5 to 500:1
- Assembled to the iMOT Line of brushless and step motors
- Three families 40 mm, 57 mm and 86 mm diameter
- Intermittent torque from 7.5 to 150 Nm
- Efficiency up to 92%
- Average backlash <30 arc minutes
- Exact ratios simplify calibration in position control applications
- Non standard ratios from 3 to 1000:1

Ordering information:
P042.621.E100 GP40M100:1-A-1 Gearbox, Size 17, Ratio 100:1
(example, see documentation for complete program)

Plug-in Servo Drives
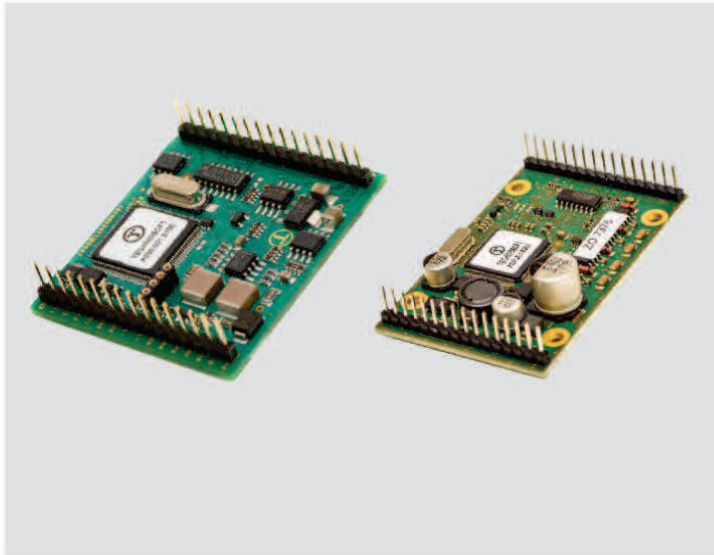
PIM2401 / PIM2403	24 V 1/3 A
Intelligent Control Plug-in Modules	**25/75 W**

- Suitable for brushless, DC brush and step motors
- Power supply: 6-24 V (PIM2401) / 12-24 V (PIM2403)
- Continuous current: 1 A (2401) / 3 A (2403)
- Peak current: 3 A (PIM2401) / 6 A (PIM2403)
- Programmable digital inputs (5) / outputs (2), analog inputs (2)
- Quadrature encoder, digital Hall sensors or linear Halls
- RS-232 and CAN / CANopen (optional)
- Size: 49 x 44 x 14 mm (PIM2401) / 59 x 42 x 20 mm (PIM2403)

Ordering Information:
P035.001.E102 PIM2401 Plug-in Control Module, 24 V, 1 A, CAN
P035.001.E112 PIM2401 Plug-in Control Module, 24 V, 1 A, CANopen, Brushless / DC
P037.001.E302 PIM2403 Plug-in Control Module, 24 V, 3 A, CAN
P037.001.E312 PIM2403 Plug-in Control Module, 24 V, 3 A, CANopen, Brushless / DC

ISCM4805 / ISCM8005	48/80 V, 5 A
Intelligent Servo Control Modules	**200/400 W**

- Suitable for brushless, DC brush and step motors
- 12-48 V logic
- Motor power supply: 48 V (ISCM4805) or 80 V (ISCM8005)
- High current capability 5 A continuous, 16 A peak
- Programmable digital inputs (7) / outputs (3), analog inputs (2)
- Quadrature encoder, digital Hall sensors or linear Halls
- RS-232 and CAN / CANopen (optional)
- Size: 80 x 50 x 17 mm

Ordering Information:
P047.001.E201 ISCM4805 Servo Control Module, 48 V, 5 A, CAN
P047.001.E211 ISCM4805 Servo Control Module, 48 V, 5 A, CANopen, Brushless / DC
P047.001.E301 ISCM8005 Servo Control Module, 80 V, 5 A, CAN
P047.001.E311 ISCM8005 Servo Control Module, 80 V, 5 A, CANopen, Brushless / DC

Open-Frame Servo Drives

ISCM4805 DIN	48 V, 5 A
Intelligent Servo Control Module	**200 W**

- Suitable for brushless, DC brush and step motors
- DIN -rail version
- 12-48 V logic
- 48 V motor power supply
- High current capability: 5 A continuous, 16 A peak
- Programmable digital inputs (8) / outputs (6), analog inputs (2)
- Quadrature encoder, digital Hall sensors or linear Halls
- RS-232 and CAN / CANopen (optional)

Ordering Information:
P052.001.E201 ISCM4805 Servo Control Module, DIN rail, 48 V, 5 A, CAN
P052.001.E211 ISCM4805 Servo Control Module, DIN rail, 48 V, 5 A, CANopen, Brushless / DC

Closed-Frame Servo Drives

IBL2401 / IBL2403
Intelligent Servo Drives

24V, 1/3A
25/75 W

- Suitable for brushless, DC brush and step motors
- Logic and motor power supply: 6-24 V (IBL2401), 12-24 V (IBL2403)
- Continuous current: 1 A (IBL2401), 3 A (IBL2403)
- Peak current: 3 A (IBL2401), 6 A (IBL2403)
- Programmable digital inputs (5) / outputs (2), analog inputs (2)
- Quadrature encoder, digital Hall sensors or linear Halls
- RS-232 and CAN (TMLCAN and CANopen)

CANopen TML

Ordering Information:
P035.001.E002 IBL2401 Servo Drive, 24 V, 1 A, RS-232 / CAN
P035.001.E012 IBL2401 Servo Drive, 24 V, 1 A, RS-232 / CANopen, Brushless / DC
P037.001.E002 IBL2403 Servo Drive, 24 V, 3 A, RS-232 / CAN
P037.001.E012 IBL2403 Servo Drive, 24 V, 3 A, RS-232 / CANopen, Brushless / DC
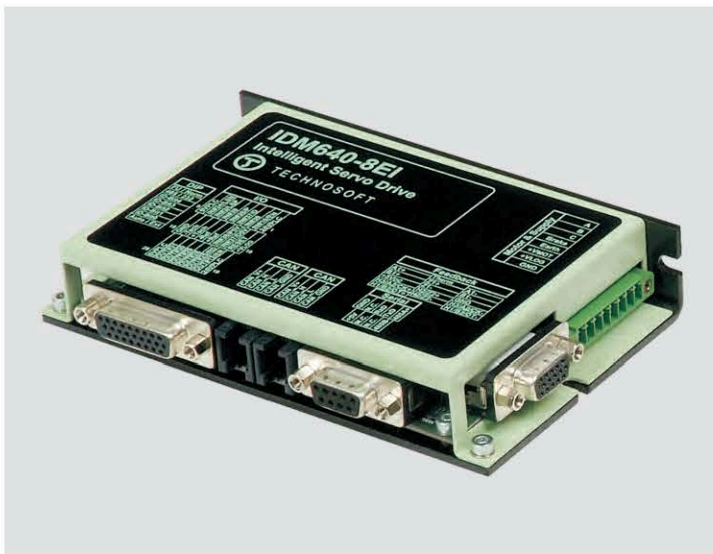
IDM240 / IDM640
Intelligent Servo Drives

48/80 V, 5/8 A
240/640 W

- Suitable for brushless, DC brush and step motors
- 12-48 V logic
- Motor power supply: 48 V (IDM240) or 80 V (IDM640)
- Continuous current: 5 A (IDM240) or 8 A (IDM640)
- Peak current: 16 A
- Opto-isolated programmable digital inputs (7) / outputs (6) and analog inputs (2)
- High resolution up to 256 microsteps / full step
- Quadrature encoder, digital Hall sensors
- RS-232 or RS-485 and CAN (TMLCAN and CANopen), EtherCAT

CANopen TML EtherCAT

Ordering Information:
P048.001.E002 IDM240-5EI Servo Drive, 80 V, 5 A, Encoder, I/O, CAN
P048.001.E101 IDM640-8EI Servo Drive, 80 V, 8 A, Encoder, I/O, CAN
P048.001.E111 IDM640-8EI Servo Drive, 80 V, 8 A, Encoder, I/O, CANopen, Brushless / DC

IDM3000-AC ER / SC
Intelligent Servo Drive

220 V ac
3 kW

- Suitable for brushless and DC brush motors
- 20-30 V logic and 220 Vac motor power supply
- 10 A continuous, 30 A peak current *
- Opto-isolated programmable digital inputs (8) / outputs (6) and analog inputs (2)
- Digital Hall, resolver, SSI and quadrature encoder
- Sin / Cos encoder (optional)
- RS-232 and CAN /(TMLCAN and CANopen)

* note: with external heatsink

CANopen TML

Ordering Information:
P049.005.E101 IDM3000-AC ER Servo Drive, 325 V, 10 A, Encoder / Resolver, CAN
P049.005.E111 IDM3000-AC ER Servo Drive, 325 V, 10 A, Encoder, Interface, CANopen
P049.005.E102 IDM3000-AC SC Servo Drive, 325 V, 10 A, Sin / Cos Encoder, CAN
P049.005.E112 IDM3000-AC SC Servo Drive, 325 V, 10 A, Sin / Cos Encoder, CANopen
P049.005.E113 IDM3000-AC ER Servo Drive, 325 V, 10 A, Resolver Interface, CANopen

- Multi-axis motion controller (up to 8 axes)
- Real-time 3D reference generator
- Powerful motion language commands including vector interpolation, 3D coordinated moves and G-code execution
- CAN network management
- Integrated servo drive for 1 axis, suitable for brushless /DC motors with encoder feedback
- Compatible only with Technosoft drives with TMLCAN protocol

Ordering Information:
P048.002.E301 TMC-3D Multi-Axis Motion Controller

Distributed Control
❑ Motion Application Split Between Host & Drives
❑ Complex Movement Programmable at Drive Level
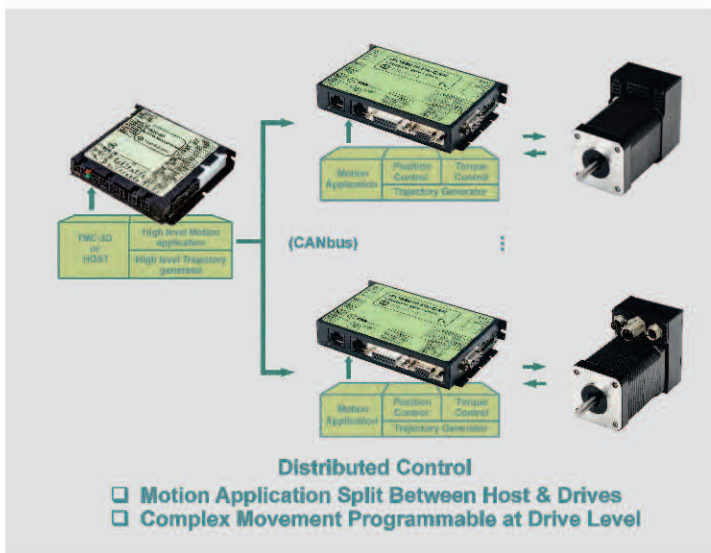
Technosoft Motion Language Examples

Through high level software programmability, Technosoft drives and motors offer extended flexibility and versatility resulting in easy-to-use solutions for a variety of motion control applications.

Single-Axis Servo, Stand Alone or Host Controlled

The drives can run a locally stored TML program, in stand-alone mode or they can be programmed and controlled from a host controller system, via a communication channel: RS-232, RS-485, EtherCAT or CAN-bus (with CAN / CANopen drive versions). 'Immediate' on-line commands and TML instructions (loading and running of programs, setup of parameters, queries on drive status) can be sent and executed.

Events and Interrupts Handling

Programmable events on Technosoft drives, combined with the TML specific interrupts structure, allow you to simultaneously handle different tasks as: protections, time intervals, I/O status or capture, control error or status variable values, besides the main program's TML motion sequences.

Multiple-Axis Coordination

In distributed multiple-axes structures, a host can provide data points to axes in the network (EtherCAT, CAN, CANopen or RS485). Also, locally stored motion profiles can be executed at the host's command, or coordinated via on-board I/Os. Moreover, any axis can request and receive information from other axes in the system, via specific TML commands.

Multi-dimensional Paths (linear interpolation & vector mode)

All Technosoft drives, together with the multi-axis controller TMC-3D, can execute 2D, $2^{1/2}$D or 3D coordinated moves. The trajectories are defined through a series of linear or circular segments. Optionally, for each segment a vector speed and acceleration can be specified. TMC-3D splits each segment into PVT points and sends these points to the slaves. On receiving the PVT points, the slaves rebuild their paths using 3rd order interpolation.

Multiple I/O Treatment / Multiple-Axis I/O Handshake

PLC-specific functionalities of Technosoft drives allow you to configure and use the I/O resources of the drive. Also the I/Os available on the drives allow you to create handshake structures between the axes, by appropriate TML programming. Activation of specific axes, completion of programmed tasks on axes, chaining of actions from one axis to another can easily be implemented, further increasing the flexibility of the motion system configuration.

**Multi-Axis Coordinated Moves**

Trapezoidal Speed Profiles

Trapezoidal Position Profiles

S-curve Profiles

Additive Position Profile

PVT Mode

PT Mode

Electronic Camming - Master

Electronic Gearing - Master

Electronic Camming - Slave

Electronic Gearing - Slave

External Mode

G-code Execution

Test Mode

Homing Mode
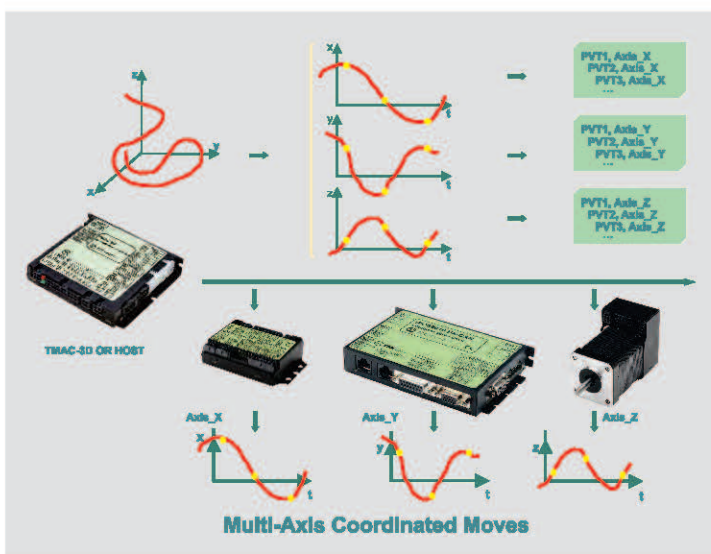
Technosoft Motion Modes

Technosoft drives and motors allow you to program their built-in motion controller in order to set different motion modes and trajectories — internal and external — depending on the way the motion reference is generated.

Trapezoidal Speed Profiles
Program a speed profile with a trapezoidal shape of the speed, due to a limited acceleration.

Trapezoidal Position Profiles
Program a position profile due to a limited acceleration. You must specify the position you want to reach, the acceleration / deceleration rate and the travel speed. The built-in reference generator computes the position trajectory, which results in a trapezoidal or triangular speed profile.

On-the-fly Change of Motion Parameters
Almost any motor mode can be switched to another mode on the fly. This feature is especially useful for position/speed control applications, where the target reference is provided by the internal trajectory generator using position / speed profile modes, position / speed contouring modes, electronic gearing, electronic cam and stop modes.

S-curve Profiles
Program a position profile with an S-curve shape of the speed. This shape is due to the jerk limitation, which leads to a trapezoidal or triangular profile of the acceleration, and to an S-curve speed profile.

PT Mode
Programs a positioning path described through a series of points where each point specifies the desired Position and Time (the PT data). Between points, the built-in reference generator performs a linear interpolation.

PVT Mode
Programs a positioning path described through a series of points. Each point specifies the desired Position, Velocity and Time (the PVT data). Between points, the built-in reference generator performs a 3rd order interpolation.

Electronic Gearing
Sets the drive as a master or a slave for electronic gearing mode. When set as a master, the drive sends its position via a multi-axis communication channel, like the CANbus. The master sends either the load position or the position reference once, at each slow loop sampling time interval. When set as a slave, the drive follows the master's position with a programmable ratio. The slave can also superpose the electronic gearing movement with another mode.

Electronic Camming
Similarly to the electronic gearing mode, the drives can be programmed to implement electronic camming. When set as master, the drive sends its position via a multi-axis communication channel. The master sends either the load position or the position reference once at each slow loop sampling time interval. When set as slave, a drive executes a cam profile function of the master position.

G-code Execution with TMC-3D
The G-code information is translated into TML commands through the *G-code to TML converter* integrated in the EasyMotion Studio. The G-code files are imported into EasyMotion Studio and translated to TML commands. After the conversion process, TMC-3D will send the motion sequences to the slaves which execute the movements.

External Mode
Programs the drives to work with an external reference provided by another device. There are 3 types of external references: analogue, digital and online.

Additive Position Profile
On-the-fly end-point modification during drive's execution of the motion profile. While a motor is executes a position profile, a new target position can be specified by adding a new position increment to the 'old' target position.

Fast Position Capture
Lets you store motor/load positions based on the transition of a digital input, allowing close correlation of axis positions to external events.

Homing
Is a sequence of motions, usually executed after power-on, through which the load is positioned into a well-defined point.

Test Mode
Sets the drives in a special test configuration setup. This configuration is supposed to be used during drive setup.
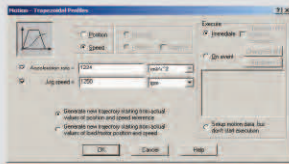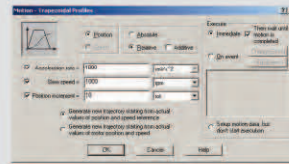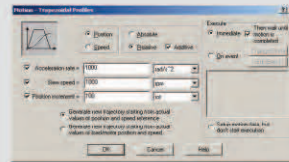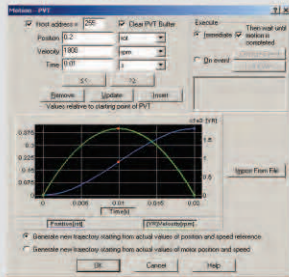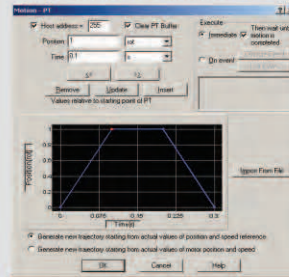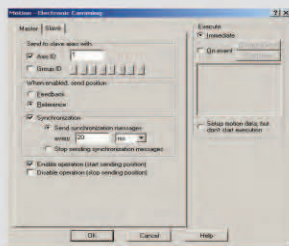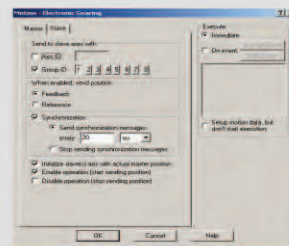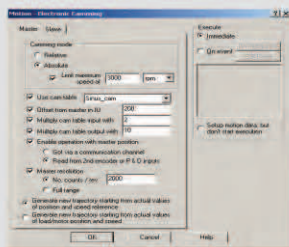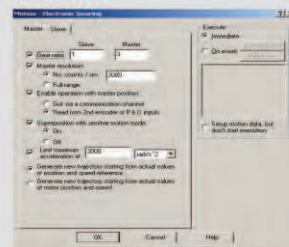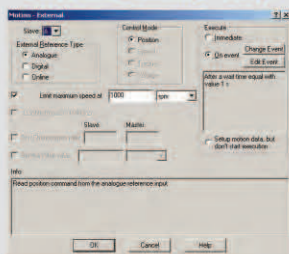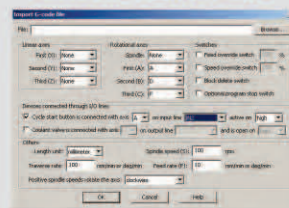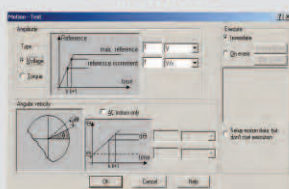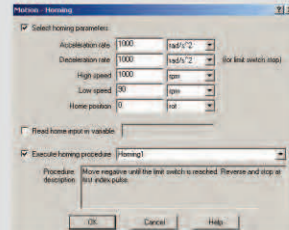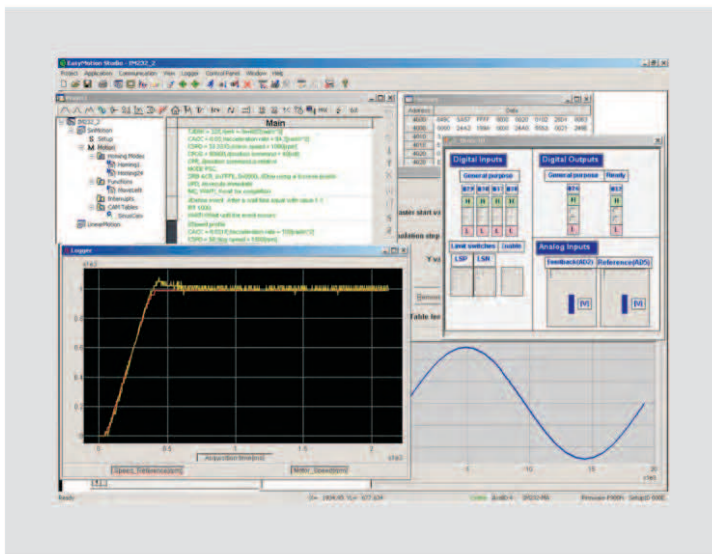
EasyMotion Studio

EasyMotion Studio gives you access to the performance of the Technosoft Motion Language (TML). The TML is a high-level set of instructions that can be used to configure and parameterize the MotionChip-based drives, and to execute advanced motion operations. EasyMotion Studio platform simplifies the setup and motion programming, as well as the development and graphical evaluation of your motion sequences. With the EasyMotion Studio, you can:

- Define the system architecture
- Identify the parameters of the motor, sensor or load
- Tune and adjust digital control loops
- Define motion sequences, import G-code files (for TMC-3D)
- Build the application in TML for single or multi-axis
- Analyze and evaluate the dynamic behavior of your motion system through real time data acquisition

Motion Libraries for PCs and PLCs

Motion Libraries are collections of functions allowing you to implement motion control applications on a PC computer or PLC, in order to run Technosoft intelligent rives based on the MotionChip™ technology. They enable you to communicate with a drive, set up its parameters, interrogate about its status, send motion commands, define motion events, test input and set output port statuses.

- **PC Motion Libraries running under Windows:** C/C++, C#, Visual Basic, Delphi Pascal and LabVIEW

- **PC Motion Libraries running under Linux:** C/C++

- **PLC Motion Libraries for Siemens, OMRON and B&R:** TML_LIB_S7, TML_LIB_ CJ1 and TML_LIB_x20
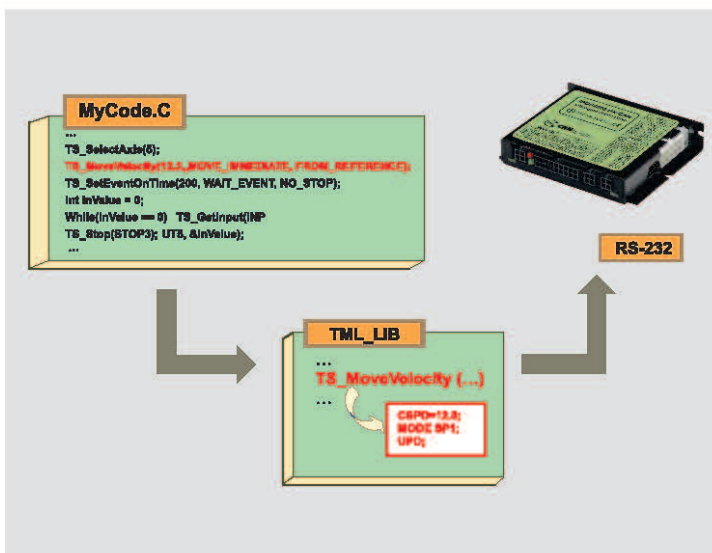
Starter Kits

For a fast and easy way of learning how to use our intelligent servo drives, Technosoft offers starter kits for each product.

These evaluation kits are ready-to-run packages that include the complete hardware and software you need in order to evaluate and develop your motion applications.

Starter kits include:

- The EasyMotion Studio software
- The intelligent drive of your choice
- A motor (brushless or stepper)
- An I/O board
- A collection of application notes
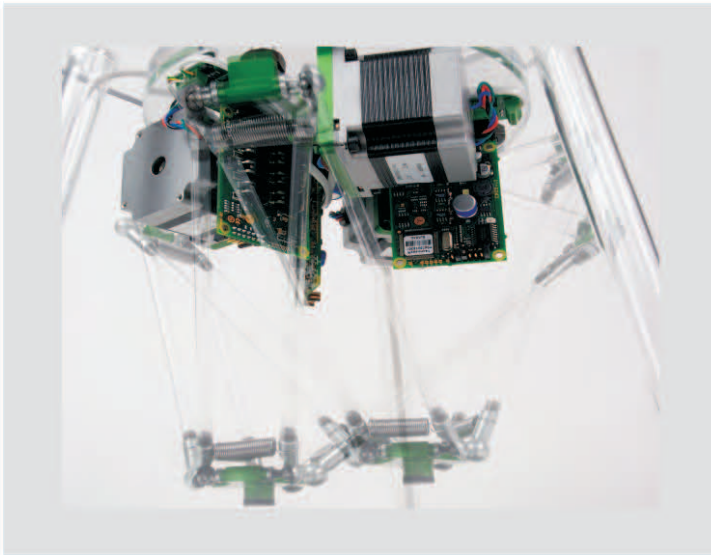
Industrial Applications

Technosoft's emphasis on modularity at both hardware and software levels allows us to create highly flexible and adaptable dedicated solutions that can easily and rapidly be prototyped to meet your specific needs. Customers from various industries requiring a wide range of motion control products and systems for specialized applications have effectively utilized Technosoft's expertise for:

- **Packaging:** intelligent solutions for distributed control
- **Medical:** laboratory automation, life support devices
- **Textile:** yarn feeder, high dynamic controls
- **Automotive:** sensorless vector control in fuel cell applications
- **Machine tools:** electronic screw drivers and nut runners
- **Semiconductor Industry:** wafer handling and processing
- **Aerospace / avionics / defense:** rugeddized solutions
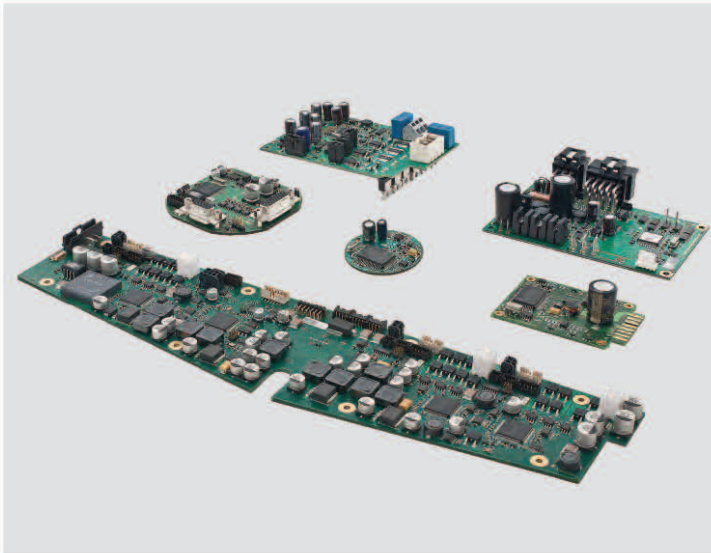
Custom Solutions

We combine advanced theoretical and modelling know-how in the field of electrical machines and digital motion control implementation on the latest Digital Signal Processor (DSP) technology. Our multidisciplinary engineering team includes experts in the various fields of motion control and mechatronics, such as:
- Intelligent and distributed motion control
- Digital control electronics
- Specific motor control algorithms
- Sensorless vector control
- Digital, analog and power electronic design

Technosoft on-demand solutions are particularly suited for:
- Specific custom integration
- Digital motor control software modules
- Intelligent modular motor controllers

Quality

- **Our experience**

  Since over 21 years Technosoft has delivered motion solutions in various fields of the industry. This experience has matured into the continuous improvement of the performance and robustness of our products.

- **Our commitment**

  Satisfy our customer's expectations by mastering all the technological aspects related to digital motion control solutions.

- **Your satisfaction**

  Technosoft is certified according to the ISO 9001:2008 standard. This rigorous management system and continuous improvement of the processes reinforce every day our competitiveness and the satisfaction of our customers.

Available Documentation and Software

Installation	Setup and Configuration	Motion Programming	Application Support
			Getting started with EasyMotion Studio

Installation

Hardware Reference

Getting Started

Setup and Configuration

EasySetUp

Motion Programming

EasyMotion Studio

TML_LIBs for PC

TML_LIBs for PLC

TML Programming Manual

Application Support

Application Notes with EasyMotion Studio

FAQ

Tutorials with EasyMotion Studio

For questions email to : support@technosoftmotion.com

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