



# SyPT Pro

System Programming Toolkit  
Automation without limits



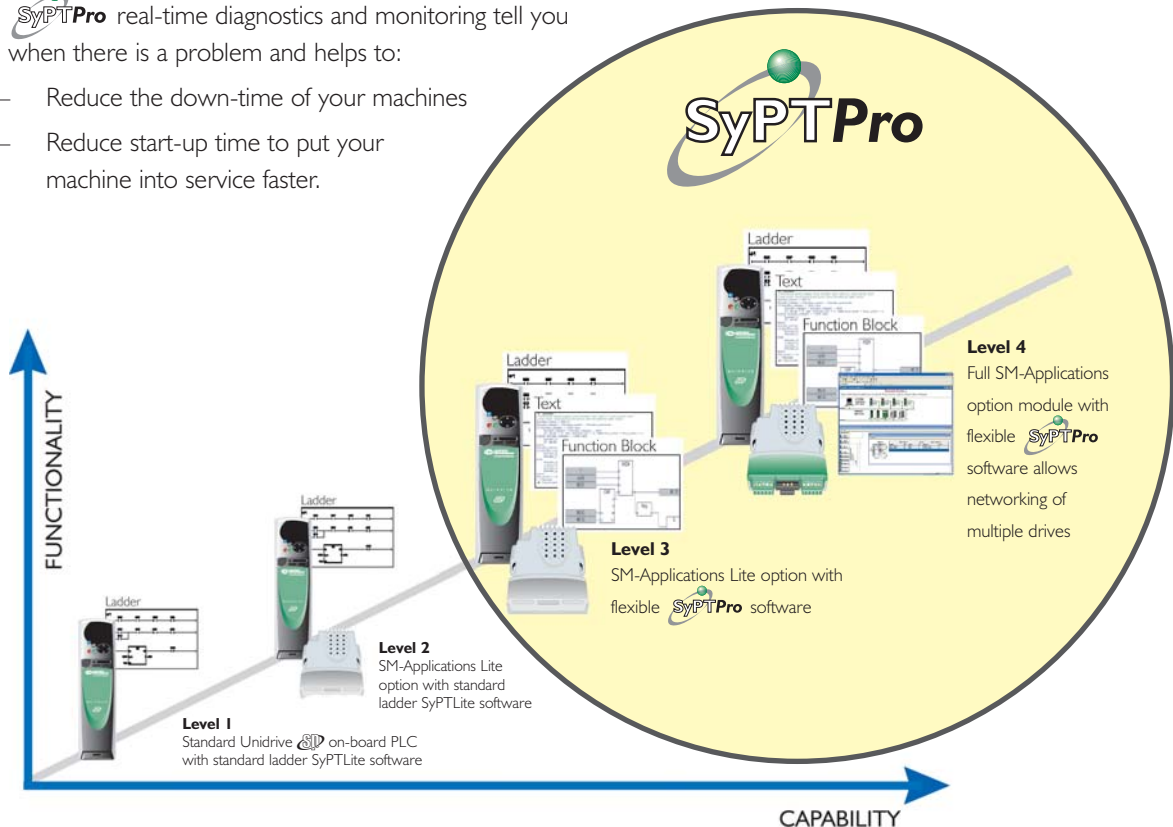


## The drive automation tool to make your machine or factory more productive.


**SyPTPro** is the professional drive-programming toolkit for OEM's and End Users for maximising the functionality of Control Techniques' range of AC & DC Drives, Servos and Options. With easy-to-use 'PLC-like' functionality, **SyPTPro** brings a new level of drive integrated performance and features, from simple single-drive applications requiring run, speed or I/O control through to fully networked multi-drive systems for machine and process control applications.

### **SyPTPro** has the power to deliver productivity

- **SyPTPro** allows you to control your machine with finer accuracy allowing you to:
  - Optimise your process
  - Increase the output quality
  - Improve productivity
  - Extend the life of your machines.
- **SyPTPro** real-time diagnostics and monitoring tell you when there is a problem and helps to:
  - Reduce the down-time of your machines
  - Reduce start-up time to put your machine into service faster.



## Performance without compromise

SyPTPro is designed for use with our three Solutions Platform Drives - Unidrive  Unidrive V3 and Mentor II. High performance PLC functionality is achieved using SM-Applications, SM-Applications Lite or MD29 option modules, each incorporates it's own high-performance microprocessor and so leaving the powerful microprocessor inside the drive to give you the best possible motor output performance.

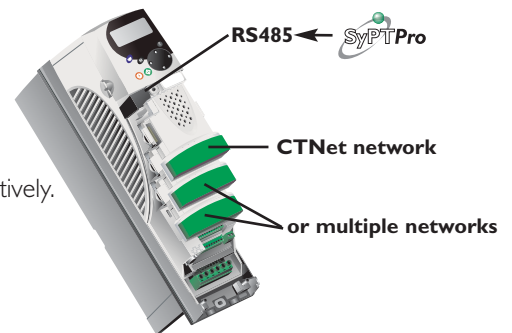


## Automation for one drive or many...

SyPTPro may be used to configure a single drive or multiple-drives across a network. For multi-drive systems CTNet is a fieldbus system that is used to link drives with the I/O, Operator Interfaces and SCADA terminals in your application. A PC running SyPTPro can connect to the drive system giving you full network visibility for programming and diagnostics.

## Future-proof your automation system programming

One thing is certain - **change**. When you want to extend or modify your machine in the future, our distributed control and network philosophy ensures that your requirements can be incorporated seamlessly and cost effectively.




## Protect your intellectual property with SyPTPro's advanced security features

### SyPTPro - delivering productivity to industry



Compressor Co. Managing Director, Brian Wood says, "The plug-in PLC has saved space, eliminated considerable wiring, removed a potential source of failure and cut costs all in one go!"

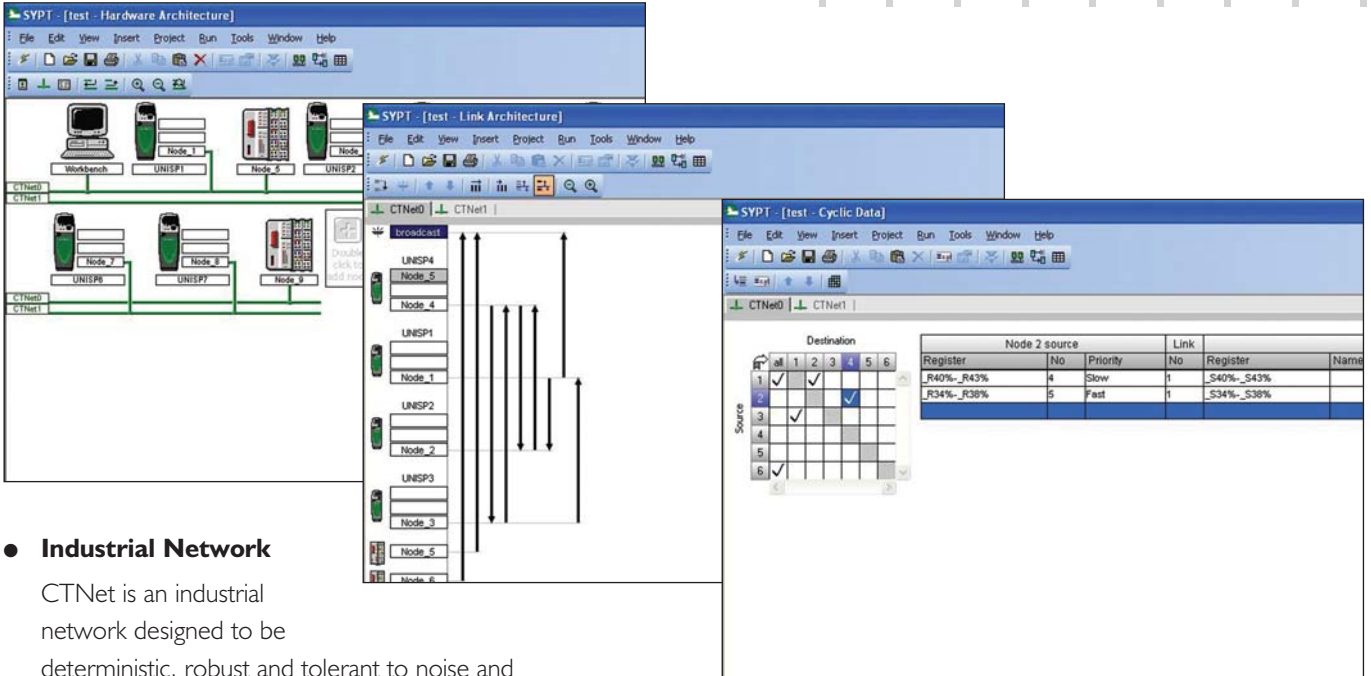


Converting Co. R&D Manager, Mauro Cattaruzza says, "On our flexographic printing machines we wanted flexibility, high productivity and high accuracy. Now, with Unidrive , we can offer these".



"One of the key factors is the space saving," explains Technical Manager from Glass Handling Equipment Co, Peter Clothier. "No separate PLC is needed as we have opted for the plug-in applications PLC module and we have been able to increase production speeds."

# Automation without limits



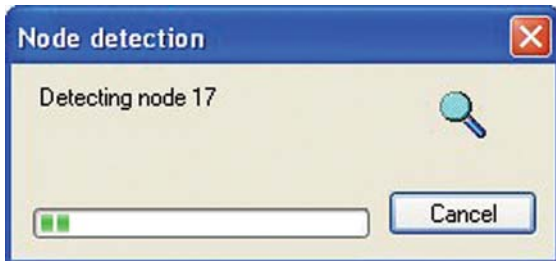
- **Industrial Network**

CTNet is an industrial network designed to be deterministic, robust and tolerant to noise and interference. A single segment of a CTNet network may connect to up to 20 drives and have a total cable length of up to 100 metres, multiple segments may be connected together using CTNet Hubs, allowing large or small drive systems to be managed and extended.

- **Auto Detection**

When SyPTPro is connected to your drive system it will:

- Automatically interrogate your network
- Discover which components are connected
- Let you upload to the PC the software from the option modules



- **Simplicity of Connection**

SyPTPro may be connected via a CTNet PC card direct to the network or through the standard RS485 programming port on the drive. It still gives you total visibility of the complete CTNet network for programming and diagnostics.

- **Multiple - CTNet Networks**

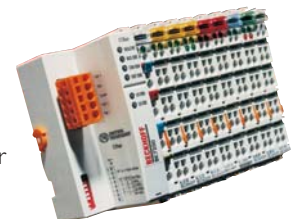
For the ultimate multi-tasking and multi-processing fit multiple SM-Applications modules to your Unidrive SD, this allows you to increase the processing power where required, and support multiple CTNet networks in a system. Even if you do not need to now, it is reassuring to know that you can expand your drive system to incorporate any future modification.

- **Network Gateway**

SyPTPro allows you to link other fieldbus networks to a CTNet system such as PROFIBUS-DP, DeviceNet, Ethernet, INTERBUS or CANopen, allowing you to seamlessly interface with your existing automation equipment.

- **I/O Support**

SyPTPro supports modular field I/O allowing you to interface a wide range of field devices with the flexibility to incorporate your future requirements.



- **Multi-point Programming**

More than one SyPTPro programming station may be resident on a CTNet network allowing work to be done on different parts of the system simultaneously and so allowing commissioning times to be minimised.



# Enhanced 'industry-standard' programming

## Multitasking Environment

The multitasking environment allows you to configure event and time based tasks that are synchronised to the drives control loops. This allows you to fragment and prioritise your software according to the speed of execution and determinism required.

## Access to all Drive Parameters

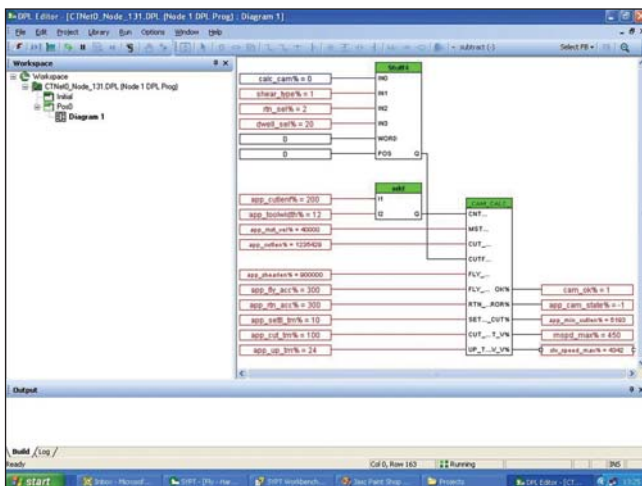
SYPTPro allows you to access all of the drive parameters at high speed, such as drive status, current, speed, voltage and I/O.

## Multi-Language Support

SYPTPro supports three programming languages giving you the flexibility to use the most appropriate language for each part of your software, helping you to make your software structured and re-usable.

## Function Block

SYPTPro incorporates an IEC61131-3 style function block program editor, and comes with a library of more than 250 function blocks

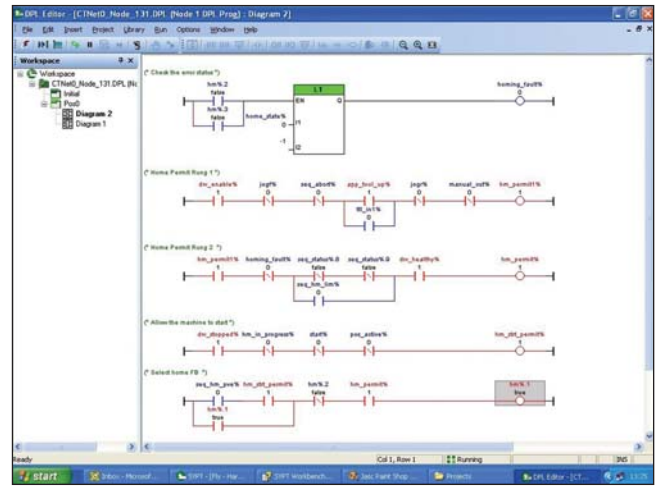


for both simple and complex functions. These embed years of application experience to make your software easier to write and easy to re-use. Additionally you can create your own function blocks and update your library via our online web site –

**SYPTPro.com**

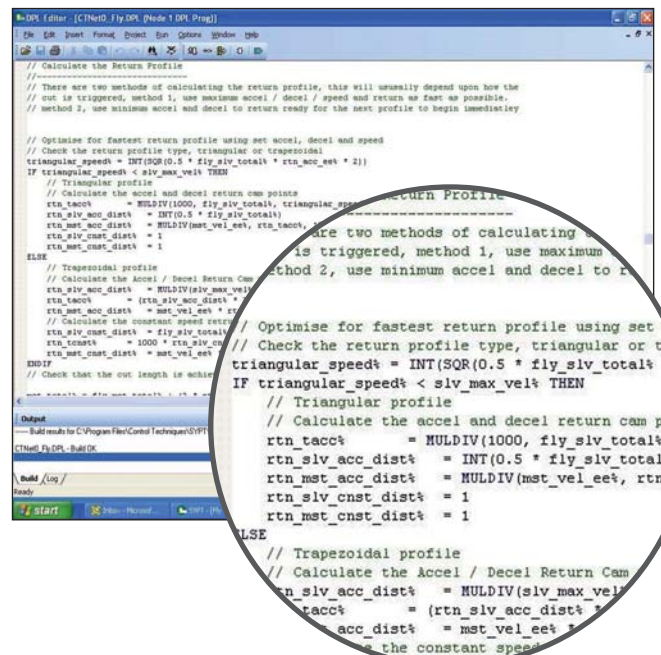
## Ladder

SYPTPro incorporates an IEC61131-3 style ladder program editor. This form of programming will be familiar to all PLC programmers, and is the ideal format for sequencing and I/O control.



## DPL

DPL (Drive Programming Language) is a structured text language, as easy to use as BASIC, incorporating many standard program structures such as IF, THEN, ELSE, and FOR, NEXT loops. DPL is ideal for initialising, configuration and general programming.



```

// Calculate the Return Profile
// There are two methods of calculating the return profile, this will usually depend upon how the
// cut is triggered, method 1, use maximum accel / decel / speed and return as fast as possible.
// method 2, use minimum accel and decel to return ready for the next profile to begin immediately

// Optimise for fastest return profile using set accel, decel and speed
// Check the return profile type, triangular or trapezoidal
triangular_speed% = INT(SQR(0.5 * fly_slv_total% * rtn_acc% * 2))
IF triangular_speed% < slv_max_vel% THEN
// Triangular profile
// Calculate the accel and decel return cam points
rtn_tacc% = MULDIV(1000, fly_slv_total%, triangular_speed%)
rtn_slv_acc_dist% = INT(0.5 * fly_slv_total%)
rtn_mst_acc_dist% = MULDIV(mst_vel_eet%, rtn_tacc%)
rtn_slv_cnst_dist% = 1
rtn_mst_cnst_dist% = 1
ELSE
// Trapezoidal profile
// Calculate the accel / Decel Return Cam
rtn_slv_acc_dist% = MULDIV(slv_max_vel% *
rtn_mst_acc_dist% = (rtn_slv_acc_dist% *
rtn_slv_cnst_dist% = 1
rtn_mst_cnst_dist% = 1
ELSE
// Trapezoidal profile
// Calculate the Accel / Decel Return Cam
rtn_slv_acc_dist% = MULDIV(slv_max_vel% *
rtn_mst_acc_dist% = (rtn_slv_acc_dist% *
rtn_slv_cnst_dist% = 1
rtn_mst_cnst_dist% = 1

```

# The Ultimate Debugging Tools

Good diagnostics are essential and ensure:

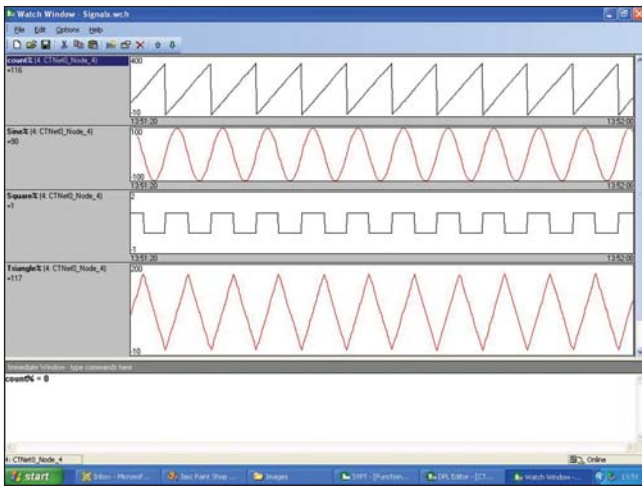
- Software development time is minimised
- Commissioning times are reduced
- Downtime is cut dramatically

## Debugging and Diagnostics

When your program is running, SyPTPro shows you live, real-time views of variables in ladder programs, function blocks and DPL structured text.

## System Watch Window

Allows you to monitor real-time variables and parameters from a single drive or multiple drives over a CTNet Network, or using RS485..



## Program Stepping and Breakpoints

Breakpoints allow you to pause the program at specified points to view the status of parameters and variables, allowing you to then step through the software while checking the program against the desired functionality.

This is an invaluable tool when trying to find software bugs in your programs.

# Protect the value of your intellectual property

## Binary File

SyPTPro gives you the option to protect your knowledge by allowing you to choose to download only the compiled binary file, and not the embedded source file to the module. This binary file is not up-loadable and so ensures that your intellectual property remains yours.

## Embedded Source Code

The source code for the program generated by SyPTPro program may be downloaded to the drive option module so that for future service and maintenance the file can be uploaded from the drive ensuring you are always working with the latest version of your software.

## User Defined Function Blocks

SyPTPro allows you to develop your own function block library and package them into secure binary files. The library may then be distributed and used in other SyPTPro programs. The binary file does not contain the original source code, and so your intellectual property remains protected.



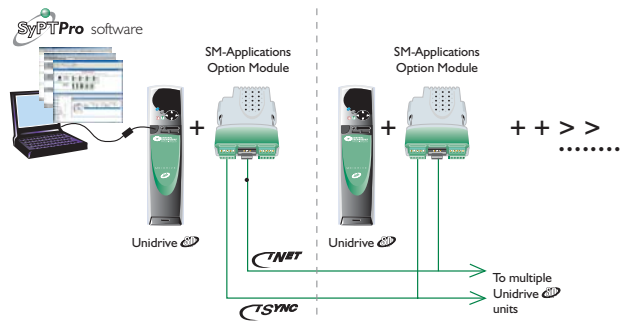
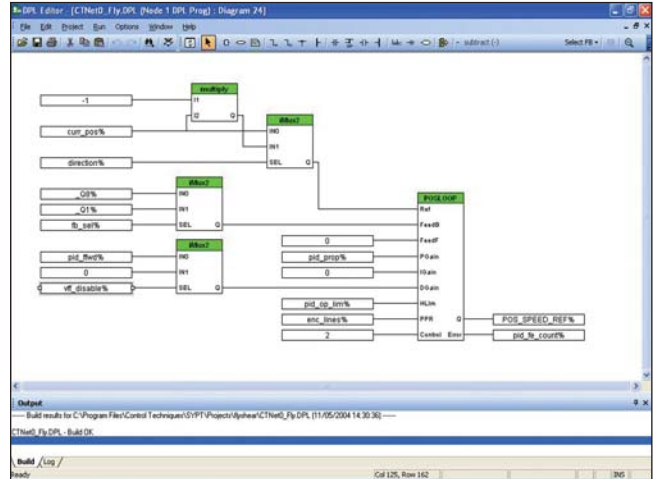


# Fully Digital Motion Control

## Motion Control

Unidrive together with SM-Application Option Module forms a fully digital high performance motion control system:

- 250µs position control loop update.
- To maximise performance the position control loop is synchronised accurately to drive speed and current loop.
- Unidrive may be connected to most encoder feedback devices including high-resolution SinCos encoders. Encoder resolution improves the positioning accuracy and performance of the system.
- Additional feedback option modules allow master slave configurations such as electronic gearbox, flying shear or rotary knife. utilises Motion Function blocks to allow a range of functions such as relative moves, absolute moves and CAM functionality.
- SM-Applications module incorporates CTSync synchronisation for multiple axis control and high speed I/O for time critical field devices.
- Consult Motion Functionality brochure for more information.



## SyPTPro\* Order Codes

Software	Drive Platform	PLC/Motion Options	PC to Drive Cable
	Unidrive	SM-Applications	CT Comms Cable***
	Unidrive	SM-Applications Lite	CT Comms Cable***
	Mentor II	MD29	
	Unidrive V3	UD7x Applications Module	

\* SyPTLite comes free with , and is also supplied with Unidrive as standard.

\*\* You need to register for the software key on [SyPTPro.com](http://SyPTPro.com)

\*\*\* Supplied free of charge with

## Further Information

Item	Part Number
Motion Functionality with Unidrive	0175-0327
Motion Made Easy with Unidrive	0175-0326
PLC Functionality with Unidrive	0175-0328
Unidrive  Universal AC Drive	0175-0313
Flexible Integration with Unidrive	0175-0330
Mentor II Digital DC Drive	0175-0106
Unidrive V3 Universal AC Drive	0175-0121

# Driving the world...

## Drive & Application Centres

### AUSTRALIA

Melbourne Application Centre  
A.C.N. 003 815 281  
Tel: 613 973 81777  
Fax: 613 9729 3200  
After Hours: 61 2 9963 5271

Sydney Drive Centre  
A.C.N. 003 815 281  
Tel: 61 2 9838 7222  
Fax: 61 2 9838 7764  
After Hours: 61 2 9963 5271

### AUSTRIA

Linz Drive Centre  
Tel: 43 7229 789480  
Fax: 43 7229 7894810  
After Hours: 43 7215 3502

### BELGIUM

Brussels Drive Centre  
Tel: 32 1574 0700  
Fax: 32 1574 0799

### CANADA

Toronto Drive Centre  
Tel: 1 905 201 4699  
Fax: 1 905 201 4694  
After Hours: 1 800 893 2321

### CHINA

Shanghai Drive Centre  
Tel: 86 21 5426 0668  
Fax: 86 21 5426 0669

Beijing Application Centre  
Tel: 86 10 856 31122 ext 820  
Fax: 86 10 856 35029

### CZECH REPUBLIC

Brno Drive Centre  
Tel: 420 541 192111  
Fax: 420 541 192115  
After Hours: 420 541 192 119

### DENMARK

Copenhagen Drive Centre  
Tel: 45 4369 6100  
Fax: 45 4369 6101  
After Hours: 45 4369 6100

### FINLAND

Helsinki Drive Centre  
Tel: 358 985 2661  
Fax: 358 985 26823  
After Hours: 358 500 423271

### FRANCE

Angoulême Drive Centre  
Tel: 33 5 4564 5454  
Fax: 33 5 4564 5400

### GERMANY

Bonn Drive Centre  
Tel: 49 2242 8770  
Fax: 49 2242 877277  
After Hours: 49 1714 964777

### Chemnitz Drive Centre

Tel: 49 3722 52030  
Fax: 49 3722 520330  
After Hours: 49 1714 964777

### Darmstadt Drive Centre

Tel: 49 6251 17700  
Fax: 49 6251 177098  
After Hours: 49 1714 964777

### GREECE

Athens Application Centre  
Tel: 0030 210 57 86086/088  
Fax: 0030 210 57 86087

### HOLLAND

Rotterdam Drive Centre  
Tel: 31 184 420555  
Fax: 31 184 420721  
After Hours: 31 184 420555

### HONG KONG

Hong Kong Application Centre  
Tel: 852 2979 5271  
Fax: 852 2979 5220  
After Hours: 852 2979 5271

### INDIA

Mumbai Application Centre  
Tel: 91 20 612 7956, 612 8415  
Fax: 91 20 611 3312

### Kolkata Application Centre

Tel: 91 33 2357 5302/2357 5306  
Fax: 91 33 2357 3435  
After Hours: 91 98 3004 8562

### Chennai Drive Centre

Tel: 91 44 2496 1123/  
2496 1130/2496 1083  
Fax: 91 44 2496 1602  
After Hours: 91 44 2496 1083

### New Delhi Application Centre

Tel: 91 11 2 576 4782/  
91 11 2 581 3166  
Fax: 91 11 51 539216

### IRELAND

Dublin Drive Centre  
Tel: 353 45 448200  
Fax: 353 45 433622

### ITALY

Milan Drive Centre  
Tel: 39 02575 751  
Fax: 39 02575 12858  
After Hours: 39 02575 751

### Vicenza Drive Centre

Tel: 39 0444 396200  
Fax: 39 0444 341317  
After Hours: 39 02 575 751

### KOREA

Seoul Application Centre  
Tel: 82 31 703 7169  
Fax: 82 31 703 7168  
After Hours: 82 31 703 7185

### MALAYSIA

Kuala Lumpur Drive Centre  
Tel: 603 5634 9776  
Fax: 603 5633 9592  
After Hours: 60 12 333 8355

### POLAND

Warszawa Application Centre  
Tel: 48 22 4589 205/4589 206  
Fax: 48 22 4589 255

### REPUBLIC OF SOUTH AFRICA

Johannesburg Drive Centre  
Tel: 27 11 462 1740  
Fax: 27 11 462 1941  
After Hours: 27 11 462 1740

### RUSSIA

Moscow Application Centre  
Tel: 7 095 232 9472  
Fax: 7 095 956 4862

### SINGAPORE

Singapore Drive Centre  
Tel: 65 6468 8979  
Fax: 65 6468 6982  
After Hours: 65 9752 5828/  
9636 0323

### SPAIN

Barcelona Drive Centre  
Tel: 34 93 680 1661  
Fax: 34 93 680 0903  
/34 93 680 2823  
After Hours: 34 610 554540

Bilbao Application Centre  
Tel: 34 94 620 3646  
Fax: 34 94 681 1406  
After Hours: 34 61 055 4547

Valencia Drive Centre  
Tel: 34 96 154 2900  
Fax: 34 96 153 2906  
After Hours: 34 66 642 8514

### SWEDEN

Stockholm Application Centre  
Tel: 468 554 241 00  
Fax: 468 554 241 10  
After Hours: 467 044 183 29

### SWITZERLAND

Lausanne Application Centre  
Tel: 41 21 637 7070  
Fax: 41 21 637 7071  
After Hours: 41 79 357 8683

### Zurich Drive Centre

Tel: 41 56 201 4242  
Fax: 41 56 201 4243  
After Hours: 41 79 357 8683

### TAIWAN

Taipei Application Centre  
Tel: 886 22325 9555  
Fax: 886 22705 9131  
After Hours: 886 92186 6502

### THAILAND

Bangkok Drive Centre  
Tel: 66 2580 7644  
Fax: 66 2591 4559  
A/Hours Sales: 66 1443 4095  
A/Hours Service: 66 1443 4098

### TURKEY

Istanbul Drive Centre  
Tel: 90 216 4182420  
Fax: 90 216 4182423  
After Hours: 90 216 418 2420

### UAE

Dubai Application Centre  
Tel: 971 4 883 8650  
Fax: 971 4 883 8651

### UNITED KINGDOM

Telford Drive Centre  
Tel: 44 1952 213700  
Fax: 44 1952 213701  
After Hours: 44 1952 213700

### USA

Charlotte Application Centre  
Tel: 1 704 393 3366  
Fax: 1 704 393 0900  
After Hours: 1 800 893 2321

Chicago Application Centre  
Tel: 1 630 752 9090  
Fax: 1 630 752 9555  
After Hours: 1 800 893 2321

Cleveland Drive Centre  
Tel: 1 440 717 0123  
Fax: 1 440 717 0133  
After Hours: 1 800 893 2321

Minneapolis US Headquarters  
Tel: 1 952 995 8000  
Fax: 1 952 995 8020/8099  
After Hours: 1 800 893 2321

Providence Drive Centre  
Tel: 1 401 541 7277  
Fax: 1 401 541 7266  
After Hours: 1 800 893 2321

● Drive & Application Centres  
● Distributors

## Distributors

### ARGENTINA

Euro Techniques SA  
Tel: 54 11 4331 7820  
Email: eurotech@eurotechsa.com.ar

### BAHRAIN

Itikhar Electrical Est.  
Tel: 973 271 1116  
Email: ieeppower@batelco.com.bh

### BRAZIL

ACIEL Comercio e Servicos LTDA  
Tel: 55 11 5565 5798  
Email: aciel@aciel.com.br

Positronic Sistemas Industriais Ltda.  
Tel: 55 11 3832 2738  
Email: info@positronic.com.br

### CHILE

Ingeniería Y Desarrollo  
Tel: 56 (2) 741 9624  
Email: idt@idt.cl

### COLOMBIA

Sistronic LTDA  
Tel: 57 1 410 04 24  
Email: jonesdug@colomsat.net.co

### CROATIA

Koncar - MES d.d.  
Tel: 385 1 366 7273  
Email: nabava@koncar-mes.hr

### CYPRUS

Acme Industrial Electronic Services Ltd  
Tel: 202 7603877/202 7605950  
Email: corporate@samiram.com

### EGYPT

Control-VH Kft  
Tel: 361 431 1160  
Email: info@controlvh.hu

### HUNGARY

Control-VH Kft  
Tel: 361 431 1160  
Email: info@controlvh.hu

### ICELAND

Samey ehf  
Tel: 354 510 5200  
Email: samey@samey.is

### INDONESIA

Pt Apikon Indonesia  
Tel: 65 6468 8979  
Email: ooicw@controltechniques.com.my

### IRAN

Atro  
Tel: +98 21 855 4210

### ISRAEL

Dor Drives Systems Ltd  
Tel: 972 3900 7595  
Email: info@dor1.co.il

### JORDAN

Nas Bros Trading Co  
Tel: 9626 416 3300  
Email: nasbros@firstnet.com.jo

### KENYA

Kassam & Bros Co. Ltd  
Tel: 2540 2 556 418  
650268 557136  
Email: kassbro@insightkenya.com

### KUWAIT

Saleh Jamal & Company WLL  
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Email: sjceng@almullagroup.com

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Email: info@blackboxcontrol.com

### MALTA

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Email: melcsamx@iserve.net.mx  
SERVITECK S.A de C.V  
Tel: 52 5 398 3380  
Email: servitek@data.net.mx

### MOROCCO

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Email: lsmaroc@wanadoo.pro.ma

### NEW ZEALAND

Electrade New Zealand  
Tel: 64 9525 1753  
Email: kevin@electrade.co.nz

### PHILIPPINES

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Email: sales@bussbar.com.ph

### POLAND

APATOR CONTROL Sp. z o.o  
Tel: 48 56 6191 207  
Email: drives@apator.torun.pl

### PORTUGAL

Harker Sumner S.A  
Tel: 351 22 947 8090  
Email: drives.automation@harker.pt

### QATAR

AFI Sitna Technologies  
Tel: 974 468 4442  
Email: info@qatar.net.qa

### ROMANIA

Dor Drives International  
Tel: 40 21 337 3465  
Email: dordrive@zappmobile.ro

### SAUDI ARABIA

A. Abunayyan Electric Corp.  
Tel: (966 1) 477 9111  
Email: aec-salesmarketing@abunayyanyangroup.com

### SLOVAKIA

EMERSON A.S  
Tel: 421 32 7700 369  
Email: petersk@uma.sk

### SLOVENIA

PS Logatec  
Tel: 386 1 750 8510  
Email: ps-log@ps-log.si

### TUNISIA

SIA Ben Djemaa & CIE  
Tel: 216 1 332 923  
Email: benjemmaa@planet.tn

### URUGUAY

Secoin S.A  
Tel: 5982 2093815  
Email: secoin@adinet.com.uy

### VENEZUELA

Vertix Instrumentos, S.A  
Tel: 58 281 267 4115

### VIETNAM

N.Duc Thinh  
Tel: 84 8 9490633  
Email: info@inducthinh.com.vn

### YUGOSLAVIA

Master Inzenjering d.o.o  
Tel: 381 24 551 605  
Email: master@eunet.yu