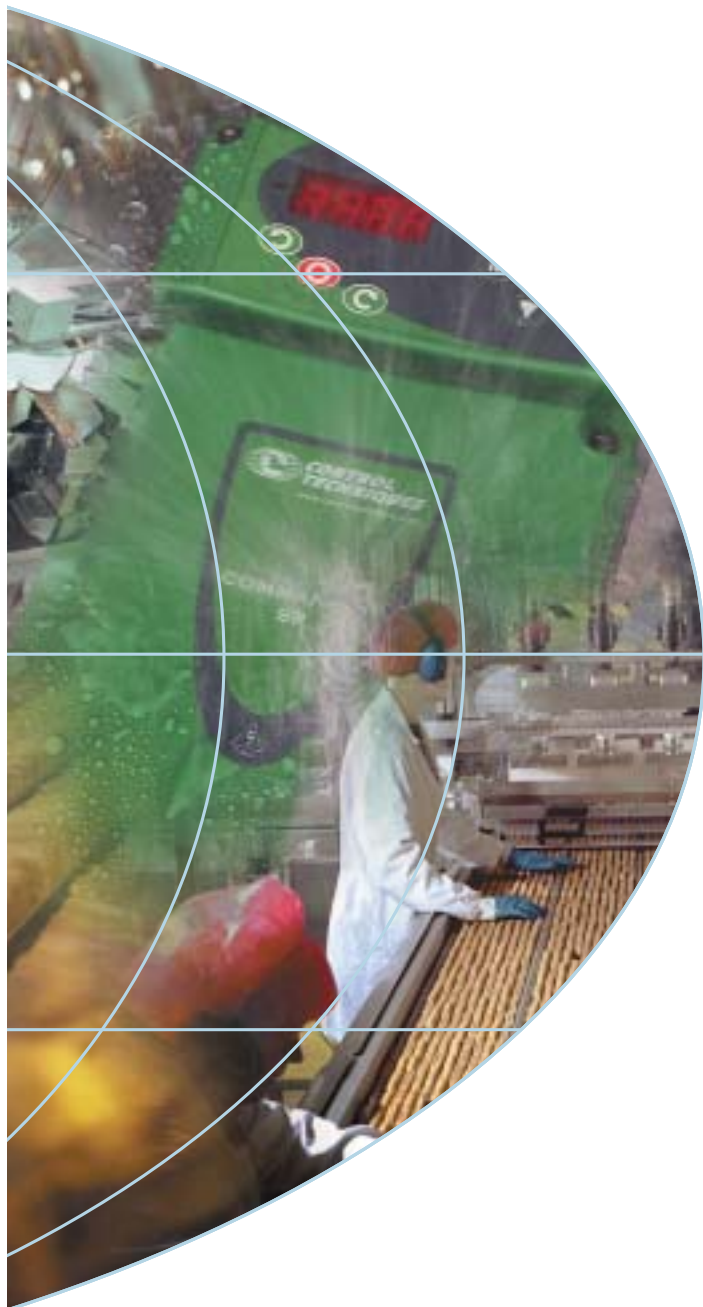




**CONTROL
TECHNIQUES**

www.controltechniques.com

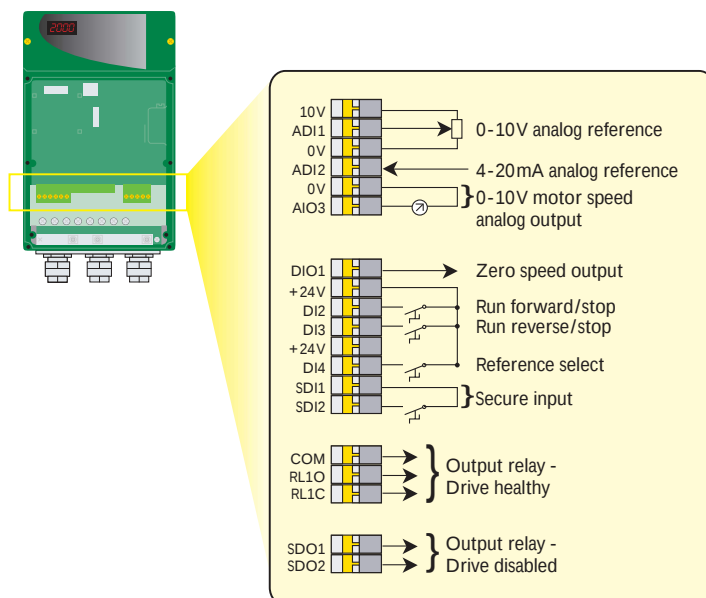
Commander SX

IP66, NEMA 4X

AC drive 0.37 to 7.5 kW
0.5hp to 10 hp



Commander SX - 'cabinet-free' drive solutions



From 0.37 to 7.5 kW (0.5 to 10hp) the Commander SX has been designed as a robust, IP66, NEMA 4X wall mounting AC drive for applications in food, drink, paper, textile and packaging machines where dirt, dust and other pollutants need to be regularly washed away.

Why Commander SX?

- IP66, NEMA 4X enclosed drive - no need for separate cabinet.
- Designed for 'direct to wall' or 'next-to-motor' mounting - avoiding cabling, cabinet and installation costs.
- Easy setup and commissioning - the first 10 parameters cover 80% of applications.
- More than 10 common preset drive applications.
- Surface and corners designed to maximise washdown effectiveness.
- Integral EMC filter (to generic and drive standards) for units up to 4 kW (5hp) - IP66 EMC filters, from 5.5 kW (7.5hp) as option.
- Robust industrial housing with simple speed control interface - no drive installation specialists required.
- Industrial standard EN954-1 categories 2 and 3 achieved through addition of PX-Secure option.

IP66 NEMA 4X

- For tough, wet and dusty environments.
- Designed for factory washdown with pressure hose, and detergents.
- Wall or machine mounting - no extra cabinets required.

Integral braking IGBT and resistor

- Heavy duty optional IP66 resistors also available.

Automatic autotune

- For fast reliable set up.



Encoder option

- Internally fitted encoder option for incremental encoders up to 32,000 lines per revolution.

Commander SX design features

- **XPressKey** for quick and easy parameter setup, transfer and storage.



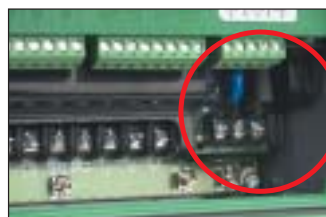
Handheld LCD text keypad

- For parameter set up and commissioning.
- Bright backlit for clarity.
- Online help functions.
- Dual language.



Brake module option

- For motor mechanical brake release - internally fitted.



Secure Input

- This input, when opened, causes the drive to be disabled. When applied in the correct manner it prevents torque on the motor shaft is guaranteed with a very high level of integrity, even if components were to fail. When the PX-Secure option is fitted it allows the use of a security function meeting EN954-1 categories 2 or 3.

General Characteristics

Advanced set up and commissioning with SXSoft

- Windows™ based commissioning software for both control and display of all parameters.
- Special drive set up wizard for first time users.
- Storage of parameter settings.
- Access to advanced parameters.



World class fieldbus flexibility

Modbus RTU
(as standard)



Onboard EMC filter

- For frame sizes 1 and 2 (4kW @ 400V).
- Meets both generic and drive EMC standards.

Optional EMC filter

- For frame size 3 (from 5.5kW @ 400V) rated to IP66.
- For long motor cable lengths.



Removable gland plate

- For rapid commissioning and easy maintenance.
- Gland fitting options.
- Designed for standard conduit

Environment

- IP66 NEMA 4X rating, for mounting in close proximity to the motor and application.
- Ambient temperature 40 °C (104°F) without derating. Up to 50 °C operation with a maximum derating of only one motor size.
- Removable gland plate for easy termination and removal of control and motor cables.
- Complies with EN954-1 Cat 3 with PX-Secure option.
- EMC cable gland option for shielded cable management.
- Electromagnetic Immunity complies with EN61800-3 (Drive standard) and EN61000-6-2 (generic standard).
- Electromagnetic Emissions complies with EN61800-3 (Drive standard - 1st and 2nd environment) with integral EMC filter.
- Complies with EN61000-6-3 and EN61000-6-4 (Generic standard) with integral EMC filter.
- Earth leakage current less than 3 mA with integral EMC filter in circuit.
- European Hygienic Engineering and Design Group EHEDG and FDA hygienic recommendations have been adopted for the food industry:
 - No paint.
 - Anodised aluminium heat sink.
 - Polycarbonate covers.
 - All slopes > 3 degrees incline.
 - Roughness < 0.8 microns.
 - No zones where liquids can accumulate.

Control

- Open loop vector control.
- V/F control.
- Closed loop vector with PX-Encoder option.
- Speed reference input 0-10 V, 0-20 mA, 4-20 mA.
- 5 digital inputs. Enable, Run forward, Run reverse, Jog, local / remote select.
- Switching frequency 3-11 kHz with 4.5kHz as default.
- Acceleration and Deceleration ramps (linear and S-type).
- Serial communication as standard
 - Modbus RTU RS485 via RJ45 connector.
- DC injection braking as standard.
- Integral dynamic braking transistor and resistor.
- PID Controller.

Protection

- Undervoltage, Supply and DC Link overvoltage, Phase loss, Drive overload, Instantaneous overcurrent, Over temp, Short circuit, Ground fault, Over heat, Motor thermal, Watchdog.

technical data...

Commander SX 200 to 240VAC ± 10% 3 phase					
Model order code	Frame size	kW rating	hp rating	100% Output current	150% Overload current for 60s
SX13200037XX	1	0.37	0.5	2.5	3.7
SX13200055XX	1	0.55	0.75	3.5	5.2
SX13200075XX	1	0.75	1	4.5	6.7
SX23200110XX	2	1.1	1.5	6	9
SX23200150XX	2	1.5	2	8	12
SX23200220XX	2	2.2	3	10	15
SX33200300XX	3	3	4	14	21
SX33200400XX	3	4	5	16.5	24.8

Commander SX 380 to 480VAC ± 10% 3 phase					
Model order code	Frame size	kW rating	hp rating	100% Output current	150% Overload current for 60s
SX13400075XX	1	0.75	1	2.5	3.7
SX13400110XX	1	1.1	1.5	3.5	5.2
SX13400150XX	1	1.5	2	4.5	6.7
SX23400220XX	2	2.2	3	6	9
SX23400300XX	2	3	4	8	12
SX23400400XX	2	4	5	10	15
SX33400550XX	3	5.5	7.5	14	21
SX33400750XX	3	7.5	10	16.5	24.8

Commander
SX 2 3 4 00075 XX
 PB - Standard 6 button version
 PT - Potentiometer version
 DV - Display only (consult factory)
 kW rating
 Voltage (400 V)
 3 phase input
 frame size
 family name

Integral EMC filter as standard						
Model order code	Mounting style	Motor Cable Industrial (m)	CT order code	D (mm)	H (mm)	W (mm)
SX13400075XX SX13400110XX SX13400150XX SX23400220XX SX23400300XX SX23400400XX	Integral EMC filter as standard					
SX33400550XX SX33400750XX	IP66 Bookcase	20	TBA	130	175	40

Note: The PT and DV versions require PX-LCD or SXSoft to commission the drive.

* Rated current at 4.5kHz (default) switching frequency.
Higher switching frequencies are available with some derating.

Options

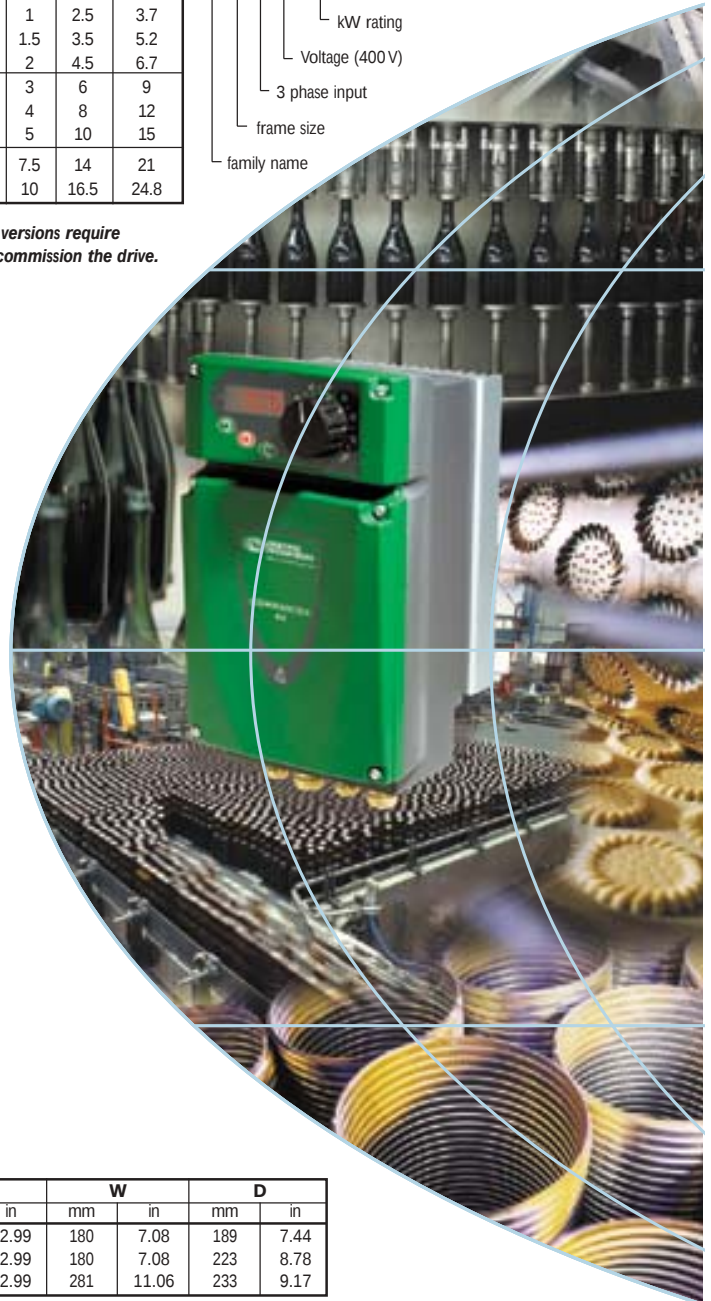
Order Code	Description
XPressKey	Parameter saving and copying
PX-LCD	Hand-held LCD text keypad
SXSoft	PC Windows™ based setup software
CT Comms Cable	Cable between PC and Drive for SXSoft
PX-I/O	I/O extension module
SM-PROFIBUS-DP	PROFIBUS DP-12 MB
SM-DeviceNet	DeviceNet fieldbus interface
SM-INTERBUS	INTERBUS fieldbus interface
SM-CANopen	CANopen fieldbus interface
PX-Encoder	Incremental encoder feedback module
PX-Brake Contactor	Motor mechanical brake contactor
PX-Secure	Compliance with EN954-1 cat 2 & 3
PX-Brake Contactor Secure	Motor mechanical brake contactor with EN954-1 cat 2 & 3
Resistors	Braking resistor available to match duty
FS6376-16-07	IP66 RFI filter
PX-Cabling Kit	Cable gland kit

Dimensions



Frame Size	H		W		D	
	mm	in	mm	in	mm	in
1	330	12.99	180	7.08	189	7.44
2	330	12.99	180	7.08	223	8.78
3	330	12.99	281	11.06	233	9.17

H = Height including mounting brackets



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

CHENNAI 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

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@eurotechnics.com.ar

BAHRAIN

Itikhar Electrical Est.
Tel: 973 271 116
Email: jeepower@bateco.com.bh

BRAZIL

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

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

CHILE

Ingenieria Y Desarrollo
Tecnologico S.A.
Tel: 56 (2) 741 9624
Email: idi@idi.cl

COLOMBIA

Sistronic LTDA
Tel: 57 1 410 0424
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: 3572 5 332181
Email: acme@cyjanet.com.cy

EGYPT

Samiram
Tel: 202 7603877/202 7605950
Email: corporate@samiram.com

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: oowc@controltechniques.com.my

IRAN

Aliro
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 2 550 418
650268 557138
Email: kasbro@insightkenya.com

KUWAIT

Saleh Jamal & Company WLL
Tel: 965 483 2358
Email: sjceng@almultagroup.com

LEBANON

Black Box Automation & Control
Tel: 961 1 443773
Email: info@blackboxcontrol.com

MALTA

Mekanka Limited
Tel: 35621 442 039
Email: mifrancoia@gasan.com

MEXICO

MELCSA
Tel: 52 5 561 1312
Email: melcsa@serve.net.mx

SERVITECK S.A de C.V
Tel: 52 5 389 3380
Email: servitek@data.net.mx

MOROCCO

Leroy Somer Maroc
Tel: 212 22 354948
Email: lsmaroc@wanadoo.ma

NEW ZEALAND

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

PHILIPPINES

Busbarr Corp.
Tel: 632 776 0066
Email: sales@busbarr.com.ph

POLAND

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

PORTUGAL

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

QATAR

API Sitra Technologies
Tel: 974 468 4442
Email: ip33@qatar.net.qa

ROMANIA

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

SAUDI ARABIA

A. Abunayen Electric Corp.
Tel: (9661) 477 9111
Email: aec-salesmarketing@abunayengroup.com

SLOVAKIA

EMERSON S.A.
Tel: +421 32 7700 369
Email: petersk@vuma.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: benjdjemaa@planet.tn

URUGUAY

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

VENEZUELA

Vertix Instrumentos S.A.
Tel: 58 261 267 4115

VIETNAM

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

YUGOSLAVIA

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