EUROTHERM
DRIVES

## PRODUCT CATALOG

Welcome to the Eurotherm Drives Product Catalog. Once again even more new products have been introduced to further establish Eurotherm Drives as the leading world specialist in variable speed drive motor control. Our tremendous selection means that we can offer the right drive for your application - every time, without compromise; drives that are filled with innovative, easy to use features, providing elegant solutions at economical prices at the highest levels of reliability.

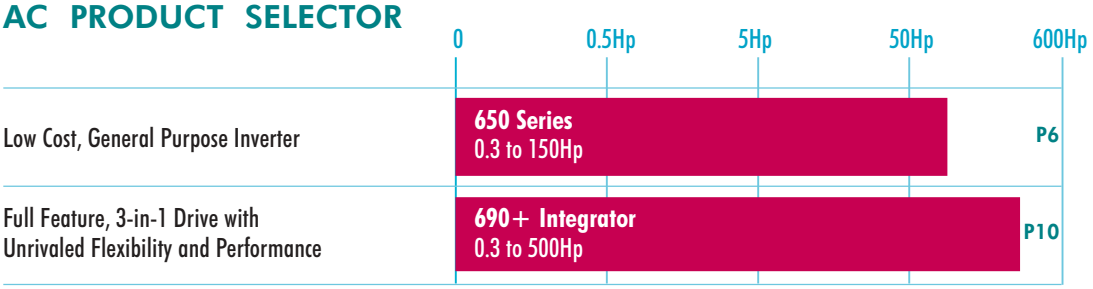


Eurotherm Drives – choices not compromises.

# CONTENTS

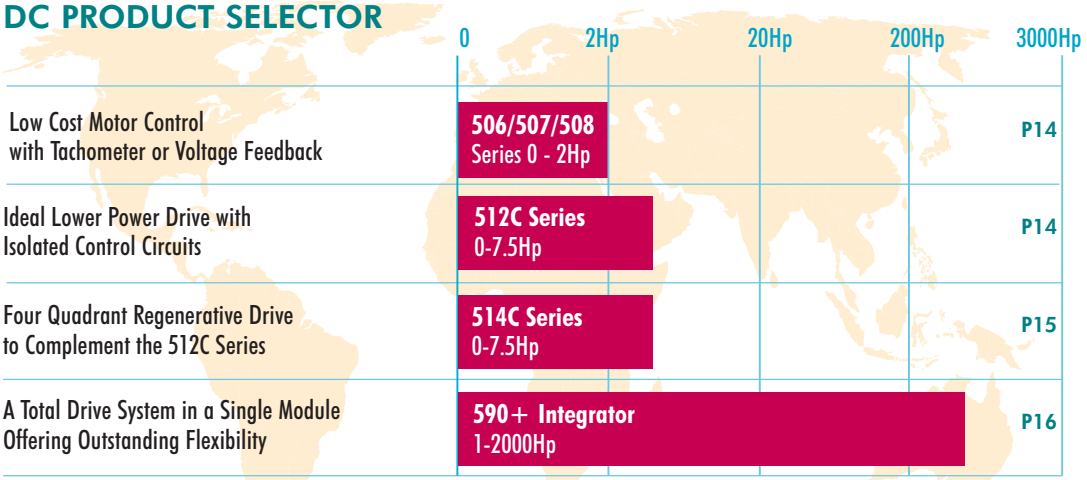
## PRODUCT SELECTOR

### AC PRODUCT SELECTOR



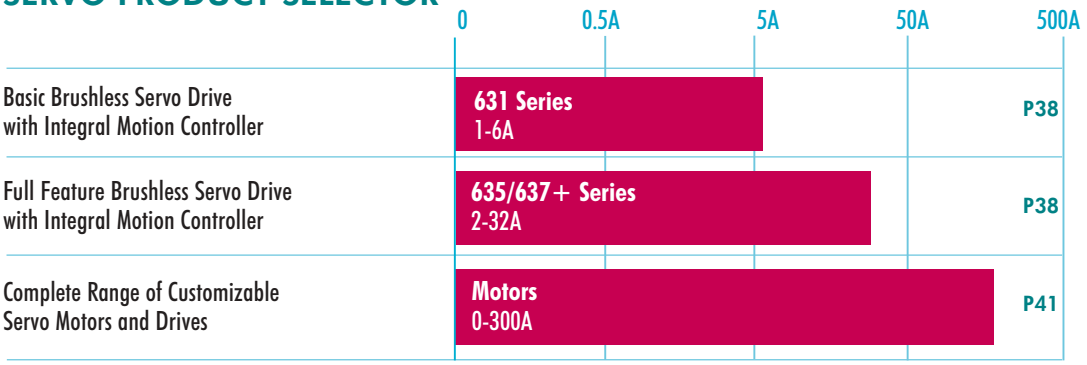



### DC PRODUCT SELECTOR






### SERVO PRODUCT SELECTOR



# CONTENTS

**Welcome to the newest Eurotherm Drives Catalog. This catalog is filled with more new products than ever before.**

When you need a drive, you want a company that has a wide enough product range with the application experience to meet your requirements. And whether you are a local end user or exporting machinery builder you want a company that will provide expert advice and support across the world. You want innovative, state of the art products that are easy to use and above all else, reliable - and you want tremendous value for money. In short you want to talk to Eurotherm Drives.

NEW

## 650 SERIES

### AC v/Hz and Sensorless Vector Drives (0.3-150 Hp)

The 650 series is a highly compact range AC drives available at amazingly cost effective prices. They are simple to set up and install and are compatible with both single-phase (230V) and three-phase (380-460V) AC supplies. The 650 series is ideal for standard AC motor control applications where the functionality of more complex drives is unnecessary.

NEW

## 631 SERIES

### AC Brushless Servo Drives and Motors (1-6A)

The 631 series is a range of low cost, compact brushless servo drives for use on 230 VAC supplies. But its size and cost are deceptive - each unit includes a powerful integral motion controller making the 631 ideal for modern high performance positioning applications and stepper drive replacement.

Packaged with a 631 drive, the NX motor completes your most economical solution for axis applications. The NX series is a new generation of compact servo motors with low inertia and very low cogging for high dynamic performance.

NEW

## DRIVE SYSTEM DESIGNER SOFTWARE

DSD - Drive System Designer - is like no other drive design software. DSD with Auto Configure allows you to quickly design a complete, multi-drive system. From a standard, single line diagram of the machine or process, the user simply enters basic parameters (like line speed, tension) and functions (like winder, nip drive) and the software does the rest. Now, a project that would have taken days of expert design and debugging time is completed within minutes.



Telephone: **704-588-3246** Fax: **704-588-3249**

NEW

## INTEGRATOR SERIES

### 690+ 3-in-1 AC Drives (1-500 Hp) and 590+ DC Drives (1-2000 Hp)

The Integrator series is a single family of both AC (690+) and DC (590+) drives offering the benefit of common programming, Fieldbus communications and software tools across both technologies.

The 690+ AC series is user configurable for basic open-loop (v/Hz), sensorless vector or full closed-loop, flux vector control. The 590+ series is available in "DRV" format incorporating all fuses, AC supply contactor, and optional fan blower starter and control transformer within the same footprint area.

NEW

## SMALLEST 150 HP AC DRIVE

### 650 and 690+ AC Drive (150 Hp)

You've made no compromises when you use our new 75 through 150 Hp AC drive package. Its rugged design, standard built-in AC line reactor and tiny (29 inch by 10 inch) footprint will make your projects an even greater success. Whether built as a 650 or a 690+ drive, it will fit your needs exactly.

NEW

## 500 HP DC DRIVE GETS SMALLER

### 590+ DC Drive (200-900 Hp)

The new Integrator series 590+ frame 4 packs all the power of our 500 Hp drive into smaller design. The fan is now internal providing ultra-quiet operation and simpler installation. In fact, this compact (27.6 x 10.0 x 13.9) drive package replaces sizes from 200 Hp through 500 Hp making Eurotherm Drives and even better fit. With line reactors, two units are paralleled, which makes the frame 5, to provide up to 1580A output, extending the range to 900 Hp.


## The Eurotherm Drives Story

Eurotherm Drives is an industry leading manufacturer of AC, DC and Servo drives and motors. We are renowned for our wide range of reliable, innovative, state of the art products, applications experience, and global support.

Established in 1974, we were originally called Shackleton System Drives (SSD). We changed our name to Eurotherm Drives in 1990. For almost 30 years, we have supplied drives to the leading OEMs and end users in industry.

In 2000, Parvex joined Eurotherm Drives, which further expanded our product offering. Now we offer a complete line of the world's most advanced AC, DC, and servo drives and motors. These products bring the right mix of features and functionality that were developed from over two and a half decades of worldwide industry experience.

Our LINK fiber-optic, real-time network provides unmatched integrated system control. It enables drives, touchscreen operator stations, I/O modules, PLCs, and supervisory computers to work seamlessly over a single fiber-optic connection.

Eurotherm Drives products provide coordinated system solutions for industries such as converting and web handling, wire, plastics, paper, textiles, metals, and motion control. Eurotherm Drives is also a leading supplier for complete drive, motor, and control solutions for the ski-lift industry.

A worldwide network of Eurotherm companies and agents ensure you get expert application and service support in over 40 countries. You can install our products wherever you are, with the confidence of full back up and support.

Whether your goal is to upgrade one motor section or automate an entire plant, Eurotherm Drives provides the ideal, one-stop solution.


Telephone: **704-588-3246** Fax: **704-588-3249**

## Systems

Complementing our complete range of AC and DC drive products, Eurotherm Drives offers a world-class drive system design service. With over two and a half decades of industry experience in converting, wire and cable, metals, paper, plastics and many more, we have built a considerable reputation for excellence of system design and manufacture.

Our highly experienced team of applications engineers provides design services for custom drive systems used in a wide variety of industries. It produces simple to complex, turnkey drive systems with integrated PLCs and SCADA control.

A standardized, functional design approach makes it possible to construct, test, and document complex systems quickly and economically, yet to a high quality standard. Our UL, CSA and CE certified panel shop builds systems that meet stringent local and world demands and the witness testing program ensures trouble-free installations.

## Service

To support installations worldwide, we offer field service and start-up assistance through domestic and international teams of service engineers. The Eurotherm Drives network of certified service houses ensures our customers can get on-site support anywhere and anytime they need it.

An experienced staff of product specialists provides an around-the-clock product support service to help customers solve problems whenever they occur.

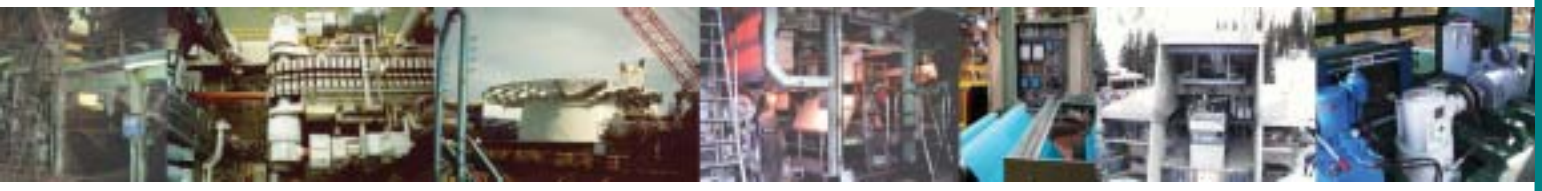
## Support

Worldwide sales offices assure local support all over the globe. They assure our customers have products available locally to support their manufacturing operations.

## Training

Eurotherm Drives provides factory, on-site, and other customized training for all of its products. This training ensures our customers learn from the experts on selecting, applying, calibrating, and troubleshooting our products.

Classes include a mixture of lecture and hands-on instruction.



AC DRIVES

# 650 NEW

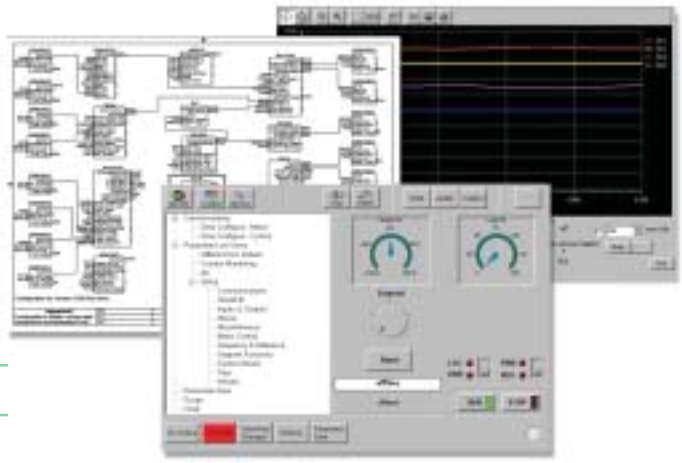
## 0.3 to 150 Hp

### v/Hz and Sensorless Vector

The 650 series inverters provide simple, no-fuss speed control of standard three-phase AC motors from 0.3 to 150 Hp. Sensorless vector versions (standard above 10 Hp) provide exceptional dynamic response. They are full of useful features including pre-programmed applications - all designed to simplify set-up, installation and operation.

With the 650 Series, you are in control of your application immediately - no complicated set-up procedures, no confusing menu navigation; just quick and easy operation straight from the box.

## ...SIMPLE TO INSTALL
## ...SIMPLE TO SET-UP
## ...SIMPLE TO OPERATE



- EXTREMELY SIMPLE SET-UP AND OPERATION
- PRE-PROGRAMMED APPLICATIONS
- LOCAL OR REMOTE MOUNTABLE KEYPAD
- EXCEPTIONALLY COMPACT DESIGN, DIN MOUNTABLE TO 10HP
- INTERNAL EMC COMPLIANT FILTERS
- HIGH TORQUE SENSORLESS VECTOR OPTION

## ConfigEd Lite Plus

Lets you...
– Set up all parameters
– Autotune your application
– Chart key variables ON LINE!



Telephone: **704-588-3246** Fax: **704-588-3249**

## 220-240V Single and Three-Phase Controllers

| Type | Heavy Duty Nominal Output | | Standard Duty Nominal Output | | Frame Size | Built-in Choke | Built-in Brake Switch |
|---|---|---|---|---|---|---|---|
| | Power KW/Hp | Current (A) | Power KW/Hp | Current (A) | | | |
| 650**/00F3/230/SNN* | 0.25/0.3 | 1.5 | – | – | 1 | – | – |
| 650**/00F5/230/SNN* | 0.3/0.5 | 2.2 | | | | | |
| 650**/00F7/230/SNN* | 0.55/0.75 | 3 | | | | | |
| 650**/0001/230/SNN* | 0.75/1 | 4 | | | | | |
| 650**/0002/230/SNN* | 1.5/2 | 7 | | | 2 | | |
| 650**/0003/230/SBN | 2.2/3 | 9.6 | | | 3 | | YES |
| 650**/0005/230/SBN | 4.0/5 | 16.4 | | | | | |
| 650V/0007/230/1BN | 5.5/7.5 | 22 | 75/10 | 28 | C | DC | |
| 650V/0010/230/1BN | 7.5/10 | 28 | 11/15 | 42 | | | |
| 650V/0015/230/1BN | 11/15 | 42 | 15/20 | 54 | D | | Optional |
| 650V/0020/230/1BN | 15/20 | 54 | 18/25 | 68 | | | |
| 650V/0025/230/1BN | 18/25 | 68 | - | - | | | |
| 650V/0030/230/1BN | 22/30 | 80 | 30/40 | 104 | E | AC | |
| 650V/0040/230/CBN | 30/40 | 104 | 37/50 | 130 | F | | |
| 650V/0050/230/CBN | 37/50 | 130 | 45/60 | 154 | | | |
| 650V/0060/230/CBN | 45/60 | 154 | 55/75 | 192 | | | |

*Single-phase supply only.
**Replace the 650 with 650V to select the sensorless vector option.

## 380-460V Three-Phase Controllers

| Type | Heavy Duty Nominal Output | | Standard Duty Nominal Output | | Frame Size | Built-in Choke | Built-in Brake Switch |
|---|---|---|---|---|---|---|---|
| | Power KW/Hp | Current (A) | Power KW/Hp | Current (A) | | | |
| 650**/00F5/460/SBN | 0.3/0.5 | 1.5 | – | – | 2 | – | YES |
| 650**/00F7/460/SBN | 0.55/0.75 | 2 | | | | | |
| 650**/0001/460/SBN | 0.75/1 | 2.5 | | | | | |
| 650**/0002/460/SBN | 1.5/2 | 4.5 | | | | | |
| 650**/0003/460/SBN | 2.2/3 | 5.5 | | | | | |
| 650**/0005/460/SBN | 3.7/5 | 9 | | | 3 | | |
| 650**/0007/460/SBN | 5.5/7.5 | 12 | | | | | |
| 650**/0010/460/SBN | 7.5/10 | 16 | | | | | |
| 650V/0015/460/1BN | 11/15 | 21 | 15/20 | 27 | C | DC | |
| 650V/0020C/460/1BN | 15/20 | 27 | 18/25 | 34 | | | |
| 650V/0025/460/1BN | 18/25 | 38 | 22/30 | 45 | D | | Optional |
| 650V/0030/460/1BN | 22/30 | 45 | 30/40 | 52 | | | |
| 650V/0040D/460/1BN | 30/40 | 52 | 37/50 | 65 | | | |
| 650V/0050/460/1BN | 37/50 | 73 | 45/60 | 87 | E | AC | |
| 650V/0060/460/1BN | 45/60 | 87 | 55/75 | 105 | | | |
| 650V/0075/460/CBN | 55/75 | 105 | 75/100 | 125 | F | | |
| 650V/0100/460/CBN | 75/100 | 125 | 90/125 | 156 | | | |
| 650V/0125/460/CBN | 90/125 | 156 | 91/150 | 180 | | | |
| 650V/0150/460/CBN | 91/150 | 180 | – | – | | | |

**Replace the 650 with 650V to select the sensorless vector option.

## Options

**Remote mount keypad** and Serial port standard on all 650V model drives (for frames 1, 2, and 3, select 650V and replace the 'S' in the part number with a 'R' to select this option)
For example, change 650/0010/460/SBN to 650V/0010/460/RBN for a standard, 10 Hp, 650 sensorless vector controller with a remote mountable keypad.

**Brake Switch** (optional above 15 Hp) (replace the 'B' in the part number with a 'N' to omit this option)
For example, change 650V/0040/460/SBN to 650V/0040/460/SNN for a standard, 40 Hp, 650 sensorless vector controller with a brake switch.

**Internal EMC filter** (up to 10 Hp) (replace the 'N' in the part number with a 'F' to select this option)
For example, change 650/0010/460/SBN to 650V/0010/460/SBF for a 10 Hp, 650 sensorless vector controller with an internally mounted EMC filter.
For external footprint style **EMC filters** (15 to 150 Hp), see page 26.

# 650

## 0.3 to 150 Hp

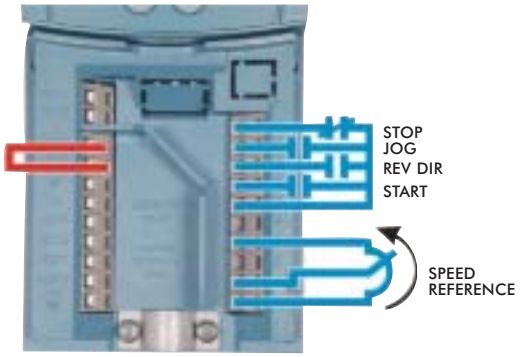
### TECHNICAL SPECIFICATION

**Power Supply** - Single phase units; 220-240 VAC ±10%; 50-60 Hz ±5%
Three phase units; 380-460 VAC ±10%; 50-60 Hz ±5%
**Ambient** - 0-40°C (32-104°F); derate 2% per °C to 50°C (122°F) maximum
**Altitude** - 1000m (3280 ft.) ASL; derate 1% per 100m (328 ft.) above 1000m (3280 ft.) to 5000m (16400 ft.) max.
**Overload** - 150% for 30 seconds (heavy duty)
115% for 30 seconds (standard duty)
**Output Frequency** - 0-240 Hz
**Environmental Protection** - IP20

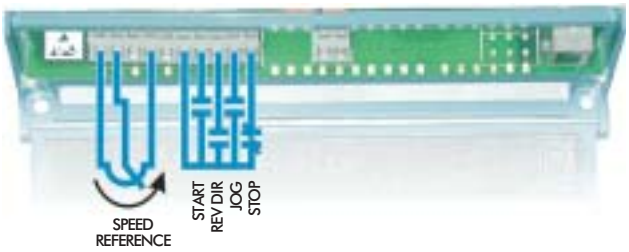
**Analog Inputs** - 2; Speed control (0-10V, 4-20mA)
**Analog Output** - 1; User configurable for DEMAND / CURRENT / PID ERROR / RAISE-LOWER OUTPUT (0-10V)
**Digital Inputs** - 2; User configurable start/stop/direction/ pre-set speeds (8)
**Digital Input/Outputs** - 2; User configurable as inputs or outputs
**Digital Relay Outputs** - 1; User configurable relay outputs (1A @ 240V)
All digital outputs configurable for AT SPEED / AT ZERO SPEED / RUNNING / HEALTHY / TRIPPED.
**Motor Thermistor Input**

### POWER SUPPLIES

**Digital I/O supply** - 24 VDC (50 mA)
**Analog reference supply** - 10 VDC (10 mA)




**FRAME 1,2,3**




**FRAME C-F**

### Dimensions

| Frame Size | Size | | | Mounting | | | Weight (Kg/Lbs) |
|---|---|---|---|---|---|---|---|
| | H | W | D | H1 | H2 | W1 | |
| 1 | 142/5.6 | 74/2.9 | 142/5.6 | 132/5.2 | – | – | 0.9/1.9 |
| 2 | 200/7.9 | 74/2.9 | 173/6.8 | 188/7.4 | | | 1.4/3.1 |
| 3 | 259/10.2 | 97/3.8 | 200/7.9 | 242/9.5 | | | 2.7/5.9 |
| C | 348/13.7 | 201/7.9 | 208/8.1 | 335/13.2 | | 150/5.9 | 9.3/20 |
| D | 453/17.8 | 252/9.9 | 245/9.6 | 471/173 | | | 17.4/38 |
| E | 668/26.3 | 257/10.1 | 312/12.12 | 630/24.8 | | | 22.5/50 |
| F | 720/28.9 | 257/10.1 | 349/13.7 | 700/27.5 | | | 29/64 |

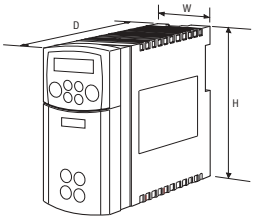
All dimensions in millimeters/inches.

### STANDARDS

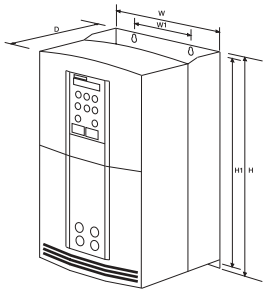
The 650 series meets European and North American standards when installed in accordance with relevant product manual.

c UL us LISTED

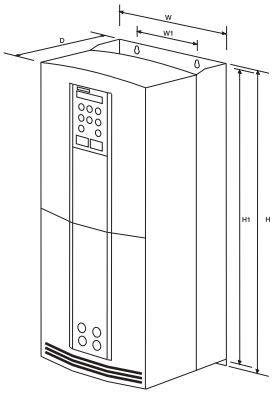
CE




**FRAME 1,2 & 3**




**FRAME C & D**



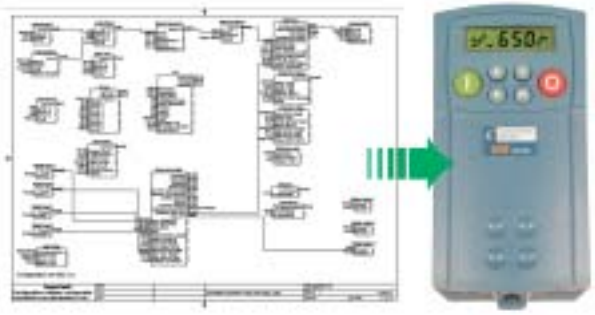

**FRAME E & F**



Telephone : **704-588-3246** Fax : **704-588-3249**

# SIMPLE TO USE

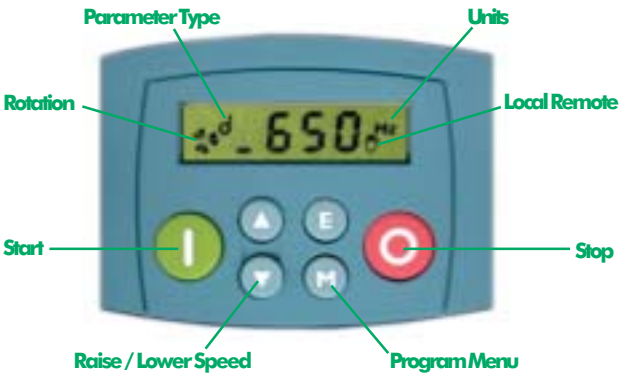
**– No languages to learn**
**– Reduced menus show only key parameters**
**– Software programmable with remote keypad option**



# SIMPLE TO OPERATE

The 6511 keypad is used for configuring and controlling the drive. Its design includes a back-lit LCD, 4-digit readout with indicators for motor rotating and direction, local/ remote operation, parameter type (diagnostic or setup), and units. The standard keypad is drive mounted and removable.

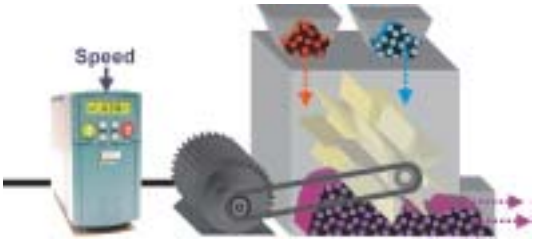
The remote keypad option lets the keypad mount up to three meters from the drive. It also includes a P3 port that can be used to program the drive with CELite+ software.



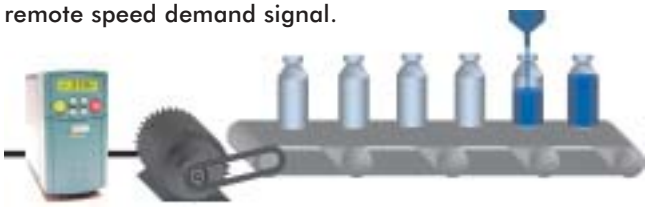

# SIMPLE TO SETUP

Select from five internal programs to control your application or manually configure the drive as required. The programs configure the drive's inputs, outputs and parameter list automatically. The applications include:

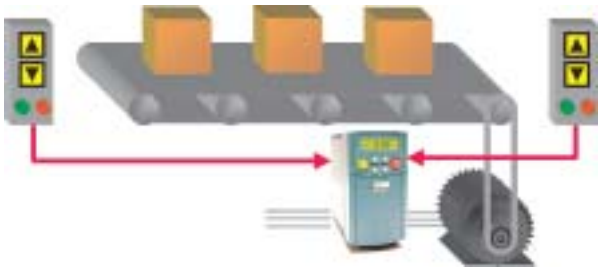
**– Basic Speed Control** - voltage or current speed demand with digital start/stop and direction.



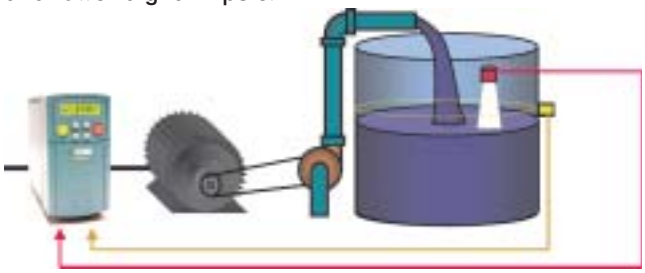

**– Manual/Auto Control** - switch between a local and remote speed demand signal.



**– Preset Speeds** - select up to 8 pre-programmed speeds using digital inputs.



**– Raise/Lower** - increase and decrease speed from raise and lower digital inputs.



**– PID Control** - control pressure, flow, temperature or other variable by monitor transducer feedback.

# 690+ Integrator

## 0.3 to 500 Hp

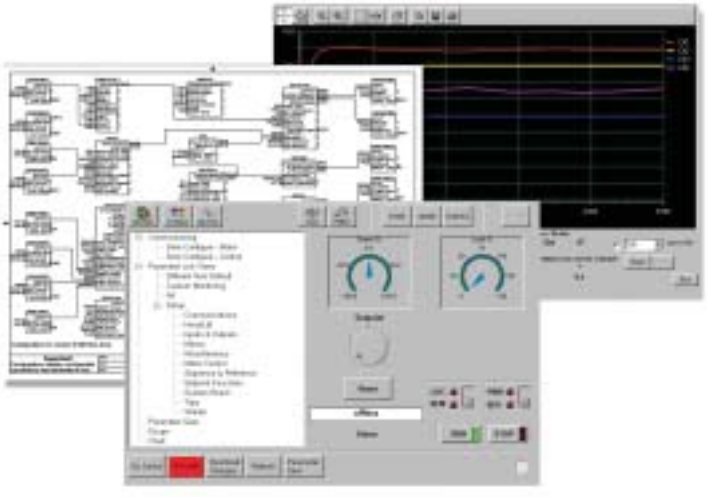
### 3-in-1

The 690+ series is a single range of AC drives designed to meet the requirements of all variable speed applications from simple, single-motor speed control through to the most sophisticated, integrated multi-drive systems. At the heart of the 690+ is a highly advanced, 32-bit microprocessor based, motor control algorithm, to which can be added a host of control options that allow you to tailor the drive to meet your exact requirements.

Three-phase (380-460V) ratings are available from 0.5 to 500 Hp and (220-240V) ratings from 0.5 to 75 Hp.

## … USER FRIENDLY
## … NETWORK FRIENDLY
## … SIMPLY POWERFUL

- OPEN LOOP (V/HZ), SENSORLESS VECTOR AND CLOSED LOOP VECTOR IN A SINGLE DRIVE
- REGENERATIVE CAPABILITY FOR COMMON BUS SUPPLIES
- COMMON PROGRAMMING, FIELDBUS AND SOFTWARE TOOLS WITH THE 590+ DC INTEGRATOR SERIES
- DUAL RATED FOR CONSTANT OR QUADRATIC 'VARIABLE' TORQUE APPLICATIONS
- IP20, IP40 (NEMA 1) AND IP54 (NEMA12) PROTECTION OPTIONS
- BUILT-IN CHOKES PROTECT AGAINST LINE SURGES AND SPIKES
- FUNCTION BLOCK PROGRAMMING



## ConfigEd Lite Plus

Lets you…
– Set up all parameters
– Autotune your application
– Chart key variables ON LINE!



Telephone: **704-588-3246** Fax: **704-588-3249**

## 208-240V Single and Three-Phase Controllers

| Type | Constant Torque Rating** Nominal Output | | Variable (Fan) Torque Rating** Nominal Output | | Frame Size | Built-in Choke | Built-in Brake Switch |
|---|---|---|---|---|---|---|---|
| | Power KW/Hp | Current (A) | Power KW/Hp | Current (A) | | | |
| 690+0001/230/1BN* | 0.75/1 | 4.3 | – | – | B | – | YES |
| 690+0002/230/1BN* | 15/2 | 8 | | | | | |
| 690+0003/230/1BN* | 2.2/3 | 10.5 | | | | | |
| 690+0005/230/1BN | 3.7/5 | 16 | | | | | |
| 690+0007/230/1BN | 5.5/7.5 | 22 | 7.5/10 | 28 | C | DC | |
| 690+0010/230/1BN | 7.5/10 | 28 | 11/15 | 42 | | | |
| 690+0015/230/1BN | 11/15 | 42 | 15/20 | 54 | D | | Optional |
| 690+0020/230/1BN | 15/20 | 54 | 18/25 | 68 | | | |
| 690+0025/230/1BN | 18/25 | 68 | - | - | | | |
| 690+0030/230/1BN | 22/30 | 80 | 30/40 | 104 | E | AC | |
| 690+0040/230/1BN | 30/40 | 104 | 37/50 | 130 | F | | |
| 690+0050/230/1BN | 37/50 | 130 | 45/60 | 154 | | | |
| 690+0060/230/CBN | 45/60 | 154 | 55/75 | 192 | | | |

* Add a '-1' suffix for controllers using a single-phase supply. * * All horsepower ratings assume a 1800 RPM base speed motor.

## 380-460V Three-Phase Controllers

| Type | Constant Torque Rating** Nominal Output | | Variable (Fan) Torque Rating** Nominal Output | | Frame Size | Built-in Choke | Built-in Brake Switch |
|---|---|---|---|---|---|---|---|
| | Power KW/Hp | Current (A) | Power KW/Hp | Current (A) | | | |
| 690+0001/460/1BN | 0.75/1 | 2.5 | – | – | B | – | YES |
| 690+0002/460/1BN | 15/2 | 4.5 | | | | | |
| 690+0003/460/1BN | 2.2/3 | 5.5 | | | | | |
| 690+0005/460/1BN | 4.0/5 | 9.5 | | | | | |
| 690+0007B/460/1BN | 5.5/7.5 | 11 | | | | | |
| 690+0010B/460/1BN | 6.0/10 | 14 | | | | | |
| 690+0015/460/1BN | 11/15 | 21 | 15/20 | 27 | C | DC | |
| 690+0020C/460/1BN | 15/20 | 27 | 18/25 | 34 | | | |
| 690+0025/460/1BN | 18/25 | 38 | 22/30 | 45 | D | | Optional |
| 690+0030/460/1BN | 22/30 | 45 | 30/40 | 52 | | | |
| 690+0040D/460/1BN | 30/40 | 52 | 37/50 | 65 | | | |
| 690+0050/460/1BN | 37/50 | 73 | 45/60 | 87 | E | AC | |
| 690+0060/460/1BN | 45/60 | 87 | 55/75 | 105 | | | |
| 690+0075/460/CBN | 55/75 | 100 | 75/100 | 125 | F | | |
| 690+0100/460/CBN | 75/100 | 125 | 90/125 | 156 | | | |
| 690+0125/460/CBN | 90/125 | 156 | 90/150 | 180 | | | |
| 690+0150/460/CBN | 91/150 | 180 | - | - | | | |
| 690+0175/460/CBN | 110/175 | 216 | 132/200 | 260 | G | External | |
| 690+0200/460/CBN | 132/200 | 250 | 150/250 | 302 | | | |
| 690+0250/460/CBN | 160/250 | 316 | 200/300 | 361 | | | |
| 690+0300/460/CBN | 180/300 | 361 | 220/350 | 420 | | | |
| 690+0350/460/CBN | 200/350 | 420 | 250/400 | 480 | H | | |
| 690+0400/460/CBN | 250/400 | 480 | 300/450 | 545 | | | |
| 690+0500/460/CBN | 280/500 | 590 | 315/550 | 650 | J | | |

* Add a '-1' suffix for controllers using a single-phase supply. * * All horsepower ratings assume a 1800 RPM base speed motor.

## Options & Accessories

**Miscellaneous** Remote mounting bezel and 3m (10 ft.) lead 6052

| **Technology Boxes** | **690+ Size B** | **690+ All Others** |
|---|---|---|
| Profibus | 6053/PROF/00 | 6055/PROF/00 |
| Modbus/RS422/RS485/EIBisynch | 6053/EI00/00 | 6055/EI00/00 |
| Link | 6053/LINK/00 | 6055/LINK/00 |
| DeviceNet | 6053/DNET/00 | 6055/DNET/00 |
| Encoder feedback | LA467461 | 6054-00 |

**Wall Mount IP40 (NEMA 1) Covers** included to 60 Hp (not available above 60 Hp)

**Dynamic Braking Switch** - optional above 15 Hp (replace the 'B' in the part number with a 'N' to remove this option)
For example, change 690+0020/460/1BN to 690+0020/460/1NN for a standard, 20 Hp, 690+ controller without a Dynamic Braking Switch installed. Drives do not include resistors for braking, for details on resistors, please refer to page 20.

**System Expansion Module** - Factory installed option. (Replace the 'N' in the part number with a 'S' to select this option)
For example, change 690+0020/460/1BN to 690+0020/460/1BS for a standard, 20 Hp, 690+ controller with a System Expansion Module installed.

**Internal EMC filter** (up to 10 Hp) (Add a '-F' suffix to select this option) For example, change 690+0005/460/1BN to 690+0005/460/1BN-F for a 5 Hp, 690+ controller with an internally mounted EMC filter. Optional external **EMC filters** and **line chokes** please refer to pages 26 and 21.

# 690+ Integrator

## 0.3 to 500 Hp

### TECHNICAL SPECIFICATION

**Power Supply** - Single or three phase units; 220-240 VAC ±10%; 50-60 Hz ±5%
Three phase units; 380- 460 VAC ±10%; 50-60 Hz ±5%

**Ambient** - Constant Torque rating - 0-45°C (32-113°F) (40°C (104°F) with IP40 cover); Variable Torque rating - 0-40°C (32-104°F) (35°C (95°F) with IP40 cover); derate 2% per °C to 50°C (122°F) maximum

**Altitude** - 1000m (3280 ft.) ASL; derate 1% per 100m (328 ft.) above 1000m (3280 ft.) to 5000m (16400 ft.) max.

**Overload** - 150% for 60 seconds, 180% for 0.5 second (frames C through F only) (constant torque rating) 115% for 60 seconds (variable torque rating)

**Output Frequency** - 0-480 Hz

**Switching Frequency** - Frame B 3, 6 or 9 kHz; Frame C, D, E and F 3 or 6 kHz (all with audibly silent switching pattern)

**Environmental Protection** - IP20

**Analog Inputs** - 4; User configurable (10 bit (12 bit with systems expansion module) (0-10V, ±10V, 0-20mA, 4-20mA))

**Analog Outputs** - 3; User configurable (10 bit 0-10V, ±10V, 0-20mA, 4-20mA)

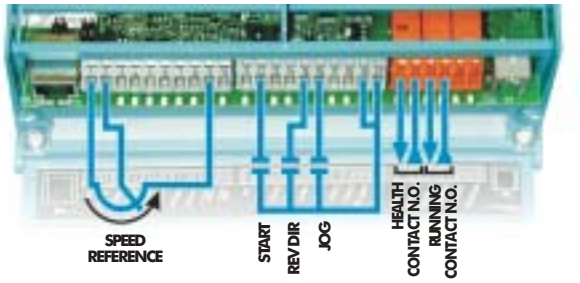
**Digital Inputs** - 7; User configurable (nominal 24V DC)

**Digital Outputs** - 3; User configurable relay outputs (3A @ 230 VAC)

**Motor Thermistor Input**

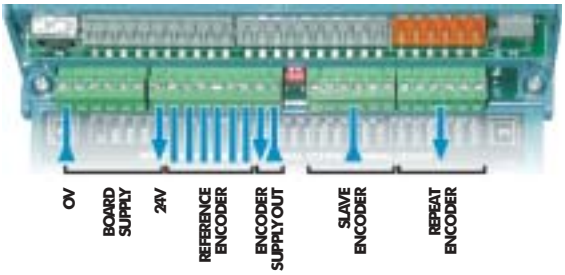
### POWER SUPPLIES

**Digital I/O supply** – 24 VDC (150 mA)
**Analog reference supply** – +10 VDC, -10 VDC (10 mA)




### SYSTEMS EXPANSION MODULE

An optional add-on systems expansion module is available for more advanced applications including phase locking between drives, electronic line shaft and register control. Key features include:
– 5 configurable digital inputs/outputs
– 2 encoder inputs
– 2 high speed register mark inputs
– Improved analog input resolution (from 10 to 12 bit plus sign)




### Dimensions

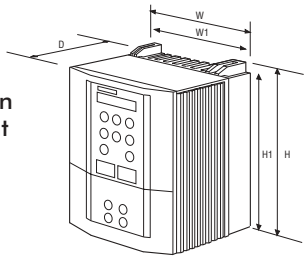
| Frame Size | Size | | | Mounting | | | Weight (Kg/Lbs) |
|---|---|---|---|---|---|---|---|
| | H | W | D | H1 | H2 | W1 | |
| B | 233/9.1 | 171/6.9 | 181/7.1 | 233/8.7 | | 129.5/5.1 | 4.3/9.5 |
| C | 348/13.7 | 201/7.9 | 208/8.1 | 335/13.2 | | 150/5.9 | 9.3/20 |
| D | 453/17.8 | 252/9.9 | 245/9.6 | 471/17.3 | – | | 17.4/38 |
| E | 668/26.3 | 257/10.1 | 312/12.2 | 630/24.8 | | | 22.5/50 |
| F | 720/28.9 | 257/10.1 | 349/13.7 | 700/27.5 | | | 29/64 |
| G | 1042/41.0 | 569/22.4 | | 300/11.8 | 16/0.6 | 420/16.5 | 108/238 |
| H | 1177/46.3 | 684/27.0 | 465/18.3 | | | 536/21.1 | 138/304 |
| J | 1288/50.7 | 789/31.1 | | | | 641/25.2 | 176/387 |

All dimensions in millimeters/inches.

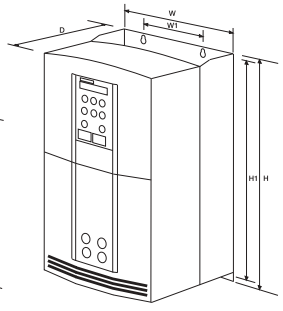
The 690+ series meets European and North American standards when installed in accordance with relevant product manual.

c UL us LISTED

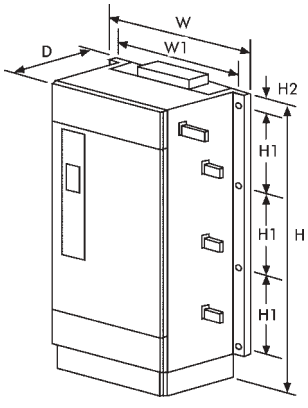
CE




FRAME B




FRAME C, D, E & F




FRAME G, H & J



Telephone: **704-588-3246** Fax: **704-588-3249**

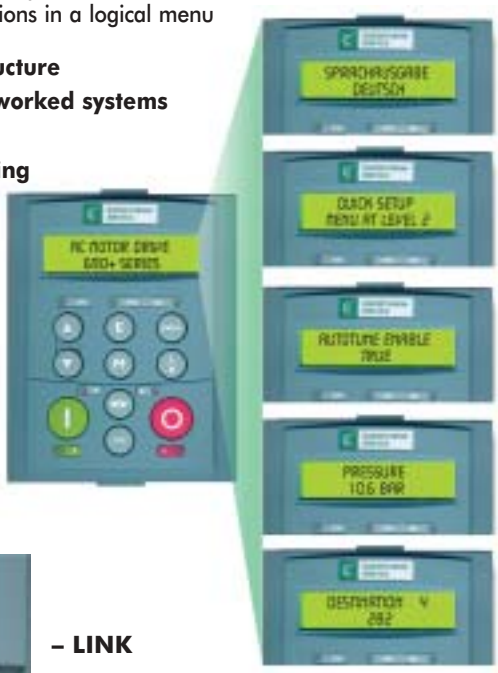
# 690+ Integrator
## 0.3 to 500 Hp

## USER FRIENDLY

**6901 Man Machine Interface**

The 6901 Man Machine Interface is used for setting-up, programming and controlling the drive. It has been ergonomically designed with a back-lit, 32-character, alphanumeric display to provide intuitive access to all functions in a logical menu driven format.

- **Straight-forward 4-button menu structure**
- **Provides local control - even on networked systems**
- **Password and function lockout**
- **Detachable for control panel mounting**
- **Same keypad as on DC drives**



**Multi-lingual plain language**
English • French • German • Spanish • Italian

**Quick set-up**
Bypasses advanced features for simple applications

**Autotune**
Custom tunes drive for full torque without turning motor shaft

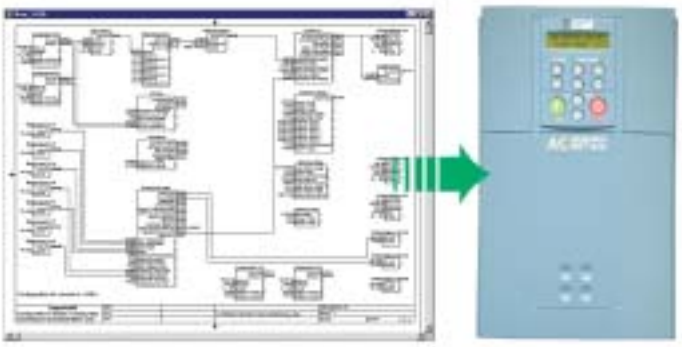
**Customized screens**
Customize to display application-specific engineering units

**Easy Configuration**
Connect any function block to any other

- **LINK**
- **DeviceNet**
- **ControlNet**
- **ProfiBus**
- **ModBus**
- **ModBus Plus**
- **Ethernet**
- **CANopen**
- **LonWorks**

## NETWORK FRIENDLY

Communication techboxes plug onto the drive and allow users to monitor and control the drive on many industry standard fieldbus networks.



## SIMPLY POWERFUL!

With built-in function blocks to meet any application.

- **PID Control**
- **Diameter Calculator**
- **Taper Calculator**
- **Torque Calculator**
- **Speed Demand Calculator**
- **Compensation Calculator**
- **Setpoint Summing Junction**

Contains several pre-engineered applications that configure entire sections like 'Speed Winders' with one selection.

# 506/507/508
## Up to 2 Hp

The 506, 507 and 508 series drives break new ground in value for money DC motor control. Available in 3, 6 or 12A armature ratings, the feature packed minimum footprint design is ideal for speed or torque control of permanent magnet or shunt wound DC motors from single-phase supplies.

### INPUTS/OUTPUTS

**Analog Inputs** - 5; Speed Setpoint / Auxiliary Setpoint / Torque or Current Limit / Zero Speed Threshold (+10V); Tachometer Feedback (200 VDC max.)

**Digital Inputs** - 1; Start-Run (+10V)

**Digital Outputs** - 2; Healthy / Zero Speed Interlock (16V 50mA)

**Reference Supplies** - 1; +10 VDC

**LED Diagnostics** - Power On, Health

**Potentiometer Adjustments**

Maximum speed / Minimum speed / Current limit / Acceleration ramp (1-15 seconds) / Deceleration ramp (1-15 seconds) / IR compensation / Speed stability

**Switch Adjustments**

Armature Current Calibration / Armature Voltage Calibration / Tachometer Feedback / Supply Voltage Select

- TORQUE OR SPEED CONTROL
- IP20 PROTECTED COVERS
- DIN RAIL MOUNTING
- SWITCH SELECTABLE 110 OR 230 VAC SUPPLY
- SWITCH SELECTABLE TACHOMETER OR ARMATURE VOLTAGE FEEDBACK

# 512C Non-Regen
## Up to 7.5 Hp

Isolated control circuitry, a host of user facilities and extremely linear control loop make the 512C ideal for single motor or multi-drive low power applications. Designed for use on single phase supplies, the 512C is suitable for controlling permanent magnet or wound field dc motors in speed or torque control.


### INPUTS/OUTPUTS

**Analog Inputs** - 4; Speed Setpoint / Auxiliary Setpoint / Torque or Current Limit (+10V); Tachometer Feedback (+350 VDC max.)

**Analog Outputs** - 4; Speed / Ramp Setpoint / Total Setpoint (+10 VDC); Armature Current (+5 VDC)

**Digital Inputs** - 2; Start-Run (+10 to +24 VDC) / Stall Override (+10 VDC)

**Digital Outputs** - 2; Health / Zero Speed (24V) 50mA) Reference Supplies - 2; -10 VDC / +10 VDC

**LED Diagnostics** - Power On, Stall Trip, Overcurrent Trip

Extremely linear control loops

**Potentiometer Adjustments**

Maximum speed / Minimum speed / Current limit / Acceleration ramp (0-40 seconds) / Deceleration ramp (0-40 seconds) IR compensation / Speed stability / Zero speed offset

**Switch Adjustments**

Armature Current Calibration / Armature Voltage Calibration / Tachometer Feedback / At Zero Speed/Setpoint / Current Meter Output / Supply Voltage Select - Jumpers

- TORQUE OR SPEED CONTROL
- FULLY ISOLATED CONTROL CIRCUITS
- MULTI INPUT SPEED AND CURRENT SETPOINTS
- EXTREMELY LINEAR CONTROL LOOPS



Telephone : **704-588-3246** Fax : **704-588-3249**

# 514C Regen
## Up to 7.5 Hp

The regenerative 514C DC drive offers full four-quadrant control of dc motors from single-phase supplies. As such it is ideal for applications involving overhauling loads or where rapid and accurate deceleration is required. Together with the non-regenerative 512C, they offer the perfect solution for lower power single motor and multi-drive applications.


### INPUTS/OUTPUTS

**Analog Inputs** - 6; Speed Setpoint / Positive Trim Setpoint / Negative Trim Setpoint / Current Demand (±10V); Current Limit (±7.5VDC); Tachometer Feedback (±350 VDC max.)

**Analog Outputs** - 5; Ramp Setpoint / Total Setpoint / Speed / Current Demand (±10V); Current Output (±5V)

**Digital Inputs** - 3; Start-Run / Enable (24 VDC) / Stall Override (+10VDC)

**Digital Outputs** - 2; Health / Zero Speed (24 VDC 50mA)

**LED Diagnostics** - Power On, Stall Trip, Overcurrent Trip, PLL Lock, Current Limit

**Reference Supplies** - 3; -10 VDC / +10 VDC / 24 VDC

**Thermistor** - 1

**Potentiometer Adjustments**

Maximum Speed / Current Limit / Acceleration Ramp (0-40 seconds) / Deceleration Ramp (0-40 seconds) / IR Compensation / Speed Loop Gain - Proportional / Speed Loop Gain - Integral / Current Gain - Proportional / Current Gain - Integral / Zero Speed Offset / Zero Speed Threshold

**Switch Adjustments**

Armature Current Calibration / Armature Voltage Calibration / Tachometer Feedback / At Zero Speed/Setpoint / Current / Meter Output / Ramp Isolate / Standstill Logic / Current Demand / Overcurrent Trip / Setpoint Comparator / Supply Voltage Select - Jumpers

- FOUR QUADRANT REGENERATIVE CONTROL
- TORQUE OR SPEED CONTROL
- MANY SYSTEM FEATURES
- EXTREMELY LINEAR CONTROL LOOPS
- 5570 DIAGNOSTIC COMPATIBLE

### 110-460V Single Phase Controller

| Type | Nominal Output Power KW/Hp | | | Output | |
|---|---|---|---|---|---|
| | 120V Supply | 230V Supply | 460V Supply | Current A | Field VDC |
| 506/03/240 | 0.2/0.2 | 0.25/0.3 | – | 3 | 100/200 |
| 507/06/240 | 0.25/0.3 | 0.75/1 | – | 6 | |
| 508/12/240 | 0.75/1 | 1.5/2 | – | 12 | |
| 512C/040/000 | 0.2/0.25 | 0.3/0.5 | 1.1/0.75 | 4 | |
| 512C/080/000 | 0.3/0.5 | 0.7/1 | 2.2/1.5 | 8 | |
| 512C/160/000 | 0.75/1 | 2.2/3 | 4.5/5 | 16 | |
| 512C/320/000 | 1.5/2 | 3.7/5 | 9/7.5 | 32 | |
| 514C/040/000 | 0.2/0.25 | 0.3/0.5 | 1.1/0.75 | 4 | |
| 514C/080/000 | 0.3/0.5 | 0.7/1 | 2.2/1.5 | 8 | |
| 514C/160/000 | 0.75/1 | 2.2/3 | 4.5/5 | 16 | |
| 514C/320/000 | 1.5/2 | 3.7/5 | 9/7.5 | 32 | |

### TECHNICAL SPECIFICATION

**506/507/508**

**Power Supply** - Main supply; 110-240 VAC ±10%; Single-phase 50-60 Hz ±5 Hz

**512C/514C**

**Power Supply** - Main supply; 110-480 VAC ±10%; Single-phase 50-60 Hz ±5 Hz
Auxiliary supply; 110-120, 220-240, or 380-415 (512C only) VAC ±10% user selectable.

**All Drives**

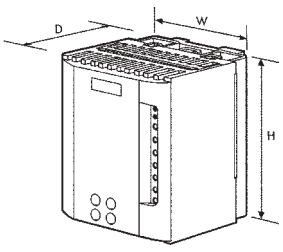
**Field Supply** - 0.9 X Main Supply voltage; 2A for 506/507/508 and 3A for 512C/514C maximum

**Ambient** - 0-45°C (32-113°F), up to 1000m (3280 ft) ASL without derating

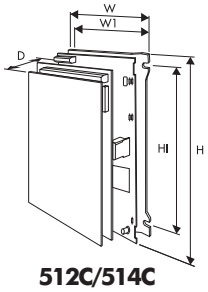
**Overload** - 150% for 60 seconds

### Dimensions

| Type | Size | | | Mounting | | Weight Kg/Lbs |
|---|---|---|---|---|---|---|
| | H | W | D | H1 | W1 | |
| 506 and 507 | 140/5.5 | 104/4.1 | 79/3.1 | 140/5.5 | 50/2.0 | 0.6/1.3 |
| 508 | | | 89/3.5 | | | 0.7/1.5 |
| 512C (4 and 8 A) | 240/9.4 | 160/6.2 | 90/3.3 | 210/8.21 | 48/5.8 | 1.5/3.3 |
| 512C (16A) | | | | | | 1.6/3.5 |
| 512C (32A) | | | 130/4.8 | | | 2.9/6.4 |
| 514C (4 and 8 A) | | | 90/3.3 | | | 1.6/3.5 |
| 514C (16 and 32 A) | | | 130/4.8 | | | 3/6.6 |




506/507/508




512C/514C

### STANDARDS

The 506/507/508, 512C and 514C series meets European and North American standards when installed in accordance with relevant product manual.

c UL us LISTED

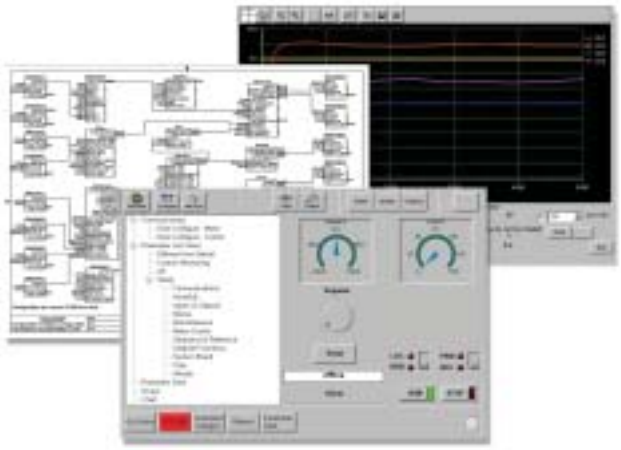
CE

# 590+ Integrator

## 1 to 2000 Hp

The Integrator Series is a single family of both AC drives (690+) and DC drives (590+) that provides the benefits of common programming, set-up and communications across both technologies. The 590+ Integrator series highly advanced DC drive meets the demands of the most complex motor control applications. Extensive application software (including winder control as standard) together with Function Block Programming and configurable I/O creates a total drive system in a single module.

## ...USER FRIENDLY
## ...NETWORK FRIENDLY
## ...SIMPLY POWERFUL



- COMMON PROGRAMMING, SET-UP AND COMMUNICATIONS WITH 690+AC INTEGRATOR SERIES
- DRV OPTION WITH BUILT-IN CONTACTOR AND FUSES
- SYSTEMS SPECIFICATION INCLUDING OPEN AND CLOSED LOOP WINDER CONTROL AS STANDARD
- RATINGS UP TO 2700A AND SUPPLY VOLTAGES UP TO 660V
- FUNCTION BLOCK PROGRAMMING BASED
- INTERNAL CONTROLLED FIELD SUPPLY

### ConfigEd Lite Plus

Lets you...
– Set up all parameters
– Autotune your application
– Chart key variables ON LINE!



Telephone : **704-588-3246** Fax : **704-588-3249**

## 220-690V Three-Phase Drives and Controllers

| Type | | Nominal Output (Hp) | | | | DRV Output Current (Amps) | Controller Output Current (Amps) | Frame Size |
|---|---|---|---|---|---|---|---|---|
| DRV* | Controller** | 230V Supply | 460V Supply | 575V Supply*** | 660V Supply*** | | | |
| 955+8R0007 | – | 3 | 7.5 | – | – | 15 | – | 1 |
| 955+8R0020 | | 10 | 20 | | | 35 | | |
| 955+8R0030 | | 15 | 30 | | | 55 | | 2 |
| 955+8R0040 | | 20 | 40 | | | 70 | | |
| 955+8R0050 | | 25 | 50 | | | 90 | | |
| 955+8R0060 | | 30 | 60 | | | 110 | | |
| 955+8R0075 | | 40 | 75 | | | 125 | | |
| 955+8R0100 | | 50 | 100 | | | 165 | | |
| 955+8R0125 | 590+0243/500 | 60 | 125 | | | 206 | 246 | 3 |
| 955+8R0150 | | 75 | 150 | | | 246 | | |
| 955+8R0200-D4**** | 590+0380/500 | 100 | 200 | 250 | | 360 | 380 | 4 |
| 955+8R0250-D4**** | 590+0500/500 | 125 | 250 | 300 | | 425 | 500 | |
| 955+8R0300-D4**** | | 150 | 300 | 350 | | 490 | | |
| 955+8R0400-D4**** | 590+0725/500 | 200 | 400 | 500 | | 700 | 725 | |
| 955+8R0500-D4 | 590+0830/500 | 250 | 500 | 600 | | 815 | 830 | |
| 955+8R0600-D5 | 590+1580/500 | – | 600 | 700 | | 1000 | 1580 | 5 |
| 955+8R0700-D5 | | | 700 | 900 | | 1200 | | |
| 955+8R0800-D5 | | | 800 | 1000 | | 1334 | | |
| 955+8R0900-D5 | | | 900 | 1100 | | 1500 | | |
| 955+8R0600 | 590+1050/500 | | 600 | 700 | 900 | 1050 | 1050 | 7b (N or R) |
| 955+8R0900 | 590+1450/500 | | 900 | 1000 | 1250 | 1450 | 1450 | |
| 955+8R1000 | 590+2000/500 | | 1000 | – | – | 1600 | 2000 | |
| 955+8R1250 | | | 1250 | 1500 | 1750 | 2000 | | |
| 955+8R1500 | 590+2400/500 | | 1500 | 1750 | 2000 | 2400 | 2400 | |

*Replace 'R' for regenerative with 'N' for non-regenerative;

**Replace 590+ for regenerative with 591+ for non-regenerative

***Consult factory for 575, 660 and 690 VAC part numbers.

****Change suffix to 'A4' for AC contactor and D4 for DC contactor

## Options

**Keypad** (included) ..... 6901
**Remote mounting bezel and lead ..... 6052**
**Communication Technology Box**
Profibus ..... 6055/PROF/00
Modbus/RS422/RS485/EIBisynch ..... 6055/E100/00
Link ..... 6055/LINK/00
DeviceNet ..... 6055/DNET/00
**Speed Feedback Technology Box**
Analog Tachometer ..... AH385870U001
Encoder feedback ..... AH387775U0xx*
* Replace 'xx' with 05, 12, 15, 24 for 5VDC, 12VDC, 15VDC or 24VDC respectively.
Microtach feedback for acrylic fiber AH386025U002
Microtach feedback for glass fiber AH386025U001

# 590+ DRV

## A new concept in DC drive technology

The DRV includes all the peripheral power components associated with a DC drive system integrally fitted within a compact footprint area. DRVs include the following integrally mounted within the drive:

Contactor; AC line fuses; DC fuse (regenerative versions); Control/field fuses; Optional motor blower starter; Optional auxiliary control transformer.

All major power components are mounted under the hinged cover within the footprint area of the drive.

### TECHNICAL SPECIFICATION

**Power Supply** – 220-500V (±10%) three phase; 500-690V (±10%) three phase >675A

**Ambient** – 0-45°C (32-113°F); 0-40°C (32-104°F) >246A; derate 1% per°C to 55°C (131°F) max.

**Altitude** – 500m (1640 ft.) ASL; derate 1% per 200m (656 ft.) above 500m to 5000m (16400 ft.) max.

**Overload** – 200% for 10 seconds, 150% for 30 seconds

### INPUTS/OUTPUTS

**Analog Inputs** – 5; 1 - Speed Demand Setpoint (±10V); 4 – User configurable; (1 x 12 bit plus sign, 4 x 10 bit plus sign)

**Analog Outputs** – 3; 1 - Armature Current Output (±10V or 0-10V); 2 – User configurable (10 bit)

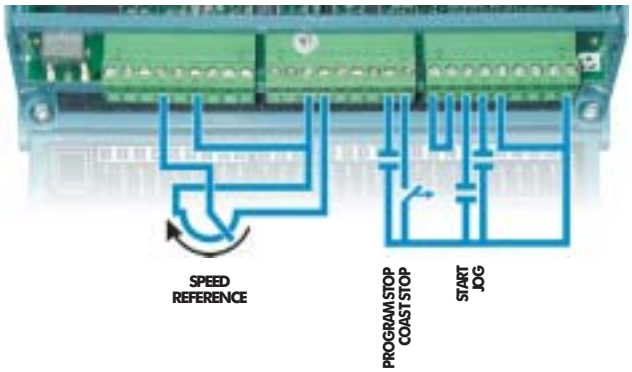
**Digital Inputs** – 9; Program Stop / Coast Stop / External Trip / Start-Run / 5 – User configurable (24V, max 15mA)

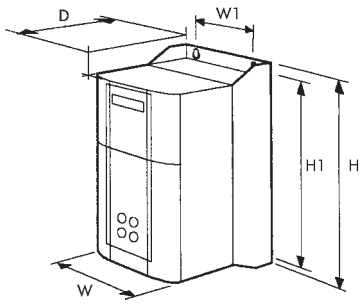
**Digital Outputs** – 3; User configurable (24V(max 30V) 100mA)

### POWER SUPPLIES

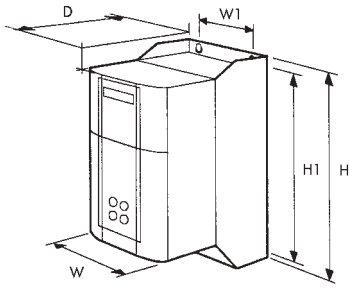
**Digital I/O Supply Total** – 24 VDC (300 mA)

**Analog Reference Supply** – +10 VDC and –10 VDC (10 mA)




FRAME 1




FRAME 2

### Dimensions

| Frame Size | Size | | | Mounting | | | Weight Kg/Lbs | DRV | Weight Kg/Lbs |
|---|---|---|---|---|---|---|---|---|---|
| | H | W | D | H1 | H2 | W1 | | H x W x D | |
| 1 | – | – | – | – | | – | – | 14.7 x 7.7 x 9 | 8.2/18 |
| 2 | – | – | – | – | | – | – | 21.5 x 7.7 x 11.6 | 17/36 |
| 3 | 500/19.7 | 300/11.8 | 211/8.3 | 399/15.7 | – | 201/7.9 | 18.0/39.6 | 27 x 17 x 9.5 | 82/180 |
| 4 | 700/27.6 | 253/10.0 | 358/14.2 | 680/26.8 | | 150/5.9 | 45.5/100 | 39 x 21.6 x 15.2 | 191/420 |
| 5 | 700/27.6 | 506/20.0 | 358/14.2 | 680/26.8 | | 150/5.9 | 92.5/204 | 56 x 38 x 18.5 | 261/575 |
| 7aN | 955/37.6 | | | | | | 178.5/394 | 49 x 43 x 16 | |
| 7aR | 1407/55.4 | 851/33.5 | 349/16.4 | 399/15.7 | 700/3.1 | 810/31.9 | 288.5/636 | 69 x 43 x 16 | –/– |
| 7bN | 955/37.6 | | | | | | 178.5/394 | 56 x 56 x 18 | |
| 7bR | 1407/55.4 | | | | | | 288.5/636 | 68 x 60 x 18 | |

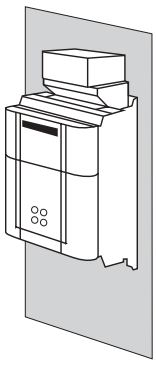
All dimensions in millimeters/inches.

### STANDARDS

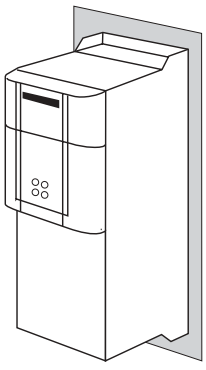
The 590+ series meets European and North American standards when installed in accordance with relevant product manual.

c UL us LISTED

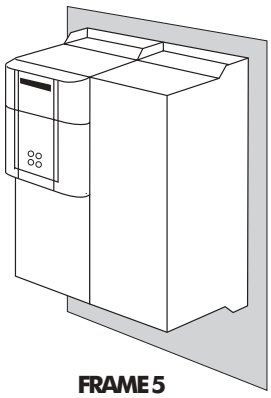
CE



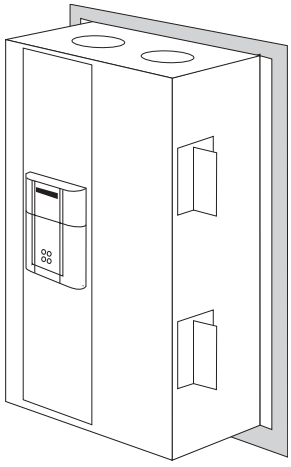
FRAME 3



FRAME 4



FRAME 5



FRAME 7



Telephone: **704-588-3246** Fax: **704-588-3249**

# 590+ Integrator
## 1 to 2000 Hp

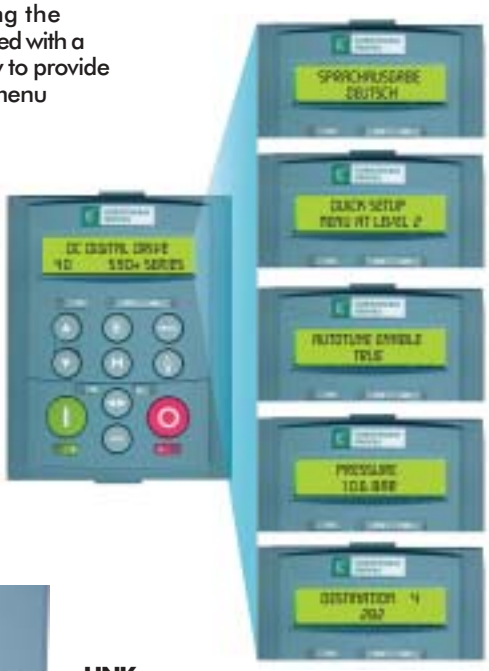
## USER FRIENDLY

**6901 MAN MACHINE INTERFACE**

The 6901 Man Machine Interface is used for setting-up, programming and controlling the drive. It has been ergonomically designed with a back-lit, 32-character, alphanumeric display to provide intuitive access to all functions in a logical menu driven format.

**Key features include:**

- **Detachable for 590+ or control panel mounting**
- **Local control of speed, start/stop, jog and direction**
- **Customized displays and legend**
- **Password and function lockout**
- **Quick set up menu**



**Multi-lingual plain language**
English • French • German • Spanish • Italian

**Quick set-up**
Bypasses advanced features for simple applications

**Autotune**
Custom tunes drive for full torque without turning motor shaft

**Customized screens**
Customize to display application-specific engineering units

**Easy Configuration**
Connect any function block to any other

- **LINK**
- **DeviceNet**
- **ControlNet**
- **ProfiBus**
- **ModBus**
- **ModBus Plus**
- **Ethernet**
- **CANopen**
- **LonWorks**

## NETWORK FRIENDLY

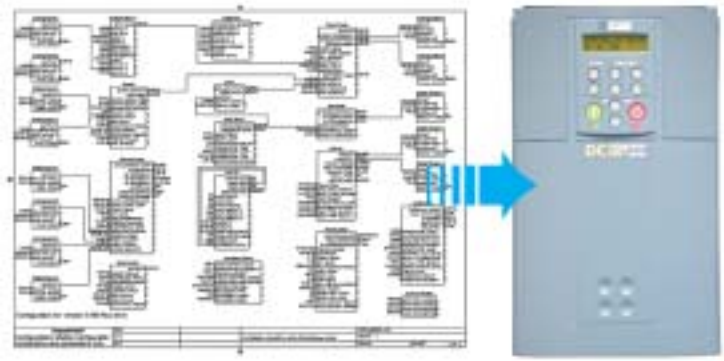
Communication techboxes plug onto the drive and allow users to monitor and control the drive on many industry standard fieldbus networks.

## SIMPLY POWERFUL

**FUNCTION BLOCK PROGRAMMING**

Function Block Programming allows almost limitless combinations of user functions to be realized with ease. Out of the box the Function Blocks are pre-configured for immediate use. However by using the programming keypad or ConfigEd Lite Plus software (see page 35) each function can be interconnected to perform many other control actions. Some of the many function blocks are:

- **Inputs**
- **Outputs**
- **Ramps**
- **Raise/Lower**
- **Winder Functions (diameter, torque, taper, compensations...)**
- **PID**
- **Field Control**
- **Jog/Slack control**



# AC Accessories
## Dynamic Braking Resistors

The Dynamic Braking Resistor kits were designed for stopping a motor at full load current from base speed with 6 times motor energy, four stops per hour (NEMA ICS 3-301.62 Dynamic Braking Stop Option).

AC inverters and flux vector controllers use dynamic braking resistors to dissipate excess energy from the DC bus caused by fast stopping or high supply voltages. This can be required even when the drive is stopped so the resistors operate, more-or-less, continuously.

The drive must be ordered with a braking module installed to use dynamic braking resistors.

These reactors are intended for use with the 690+ Series three-phase controllers. They may be used when voltage transformation or supply isolation is not required. Consult factory for resistors for older products.

- COMPACT DESIGN
- ROOF/PANEL MOUNTING
- HORSEPOWER RATINGS FOR SIMPLIFIED SELECTION
- INTEGRAL COVERS TO PREVENT INCIDENTAL CONTACT WITH LIVE RESISTORS

### 230 VAC Dynamic Braking Kit w/Cover

| Hp C.T. | Hp V.T. | Ohms | Amps | Catalog No. |
|---|---|---|---|---|
| 1 | 1 | 45 | 2.5 | CZ470637 |
| 1.5 | 2 | 45 | 2.5 | CZ470637 |
| 2 | 3 | 45 | 2.5 | CZ470637 |
| 3 | 5 | 45 | 2.5 | CZ470637 |
| 5 | 7.5 | 27 | 3.6 | CZ353192 |
| 7.5 | 10 | 15 | 5.3 | CZ353193 |
| 15 | 15, 20 | 10 | 8.5 | CZ353195 |
| 20 | - | 7.5 | 12 | CZ353196 |
| 25 | 25 | 6 | 15 | CZ353197 |
| 30 | 30, 40 | 5 | 18 | CZ353198 |
| 40 | 50 | 3.5 | 27 | CZ353199 |
| 50 | 60 | 2.4 | 30 | CZ353200 |

### 460 VAC Dynamic Braking Resistor Kit w/Cover

| Hp C.T. | Hp V.T. | Ohms | Amps | Catalog No. |
|---|---|---|---|---|
| 1 | 1 | 100 | 1 | CZ389853 |
| 2 | 2 | 100 | 1 | CZ389853 |
| 3 | 3 | 100 | 1 | CZ389853 |
| 5 | 7.5 | 100 | 1.6 | CZ353179 |
| 7.5 | 10 | 100 | 1.6 | CZ353179 |
| 10 | 15 | 54 | 3.6 | CZ353181 |
| 15 | 20 | 54 | 3.6 | CZ353181 |
| 20 | 25 | 30 | 5.3 | CZ353182 |
| 25 | 30 | 30 | 5.3 | CZ353182 |
| 30 | 40 | 30 | 5.3 | CZ353182 |
| 40 | 50 | 26 | 7 | CZ353183 |
| 50 | 60 | 18.4 | 9.2 | CZ353185 |
| 60 | 75 | 12 | 13 | CZ353186 |
| 75 | 100 | 9 | 18 | CZ353188 |
| 100 | 125 | 7 | 22 | CZ353189 |
| 125 | 150 | 5.5 | 27 | CZ353190 |
| 150 | - | 5.5 | 27 | CZ353190 |
| 175 | 200 | 3.22 | 41 | CZ470036 |
| 200 | 250 | 2.6 | 46 | CZ470037 |
| 250 | 300 | 2.2 | 50 | CZ470038 |
| 300 | 350 | 2.2 | 50 | CZ470038 |
| 350 | 400 | 1.67 | 57 | CZ470039 |
| 400 | 450 | 1.37 | 63 | CZ470040 |
| 450 | 500 | 1.37 | 63 | CZ470040 |
| 500 | 550 | 1.12 | 70 | CZ470041 |


Telephone: 704-588-3246 Fax: 704-588-3249

# Three-Phase Line Reactors

- COMPACT DESIGN
- UL RECOGNISED AND CSA CERTIFIED
- RATINGS FOR 230 AND 480 VAC SUPPLIES
- ALL UNITS PROVIDE COMPRESSION TERMINALS

These reactors are intended for use with the 690+ Series three-phase controllers. They may be used when voltage transformation or supply isolation is not required. Line reactors limit total radiated RF interference.

## 230 VAC Reactors

| Hp | Amp | Description | Catalog No. |
|---|---|---|---|
| 1 | 4 | Reactor 3-phase 3.00 mh | CO470653 |
| 1.5 | 8 | Reactor 3-phase 1.50 mh | CO353011 |
| 2 | 8 | Reactor 3-phase 1.50 mh | CO353011 |
| 3 | 12 | Reactor 3-phase 1.25 mh | CO470638 |
| 5 | 18 | Reactor 3-phase 0.80 mh | CO353012 |
| 7.5 | 25 | Reactor 3-phase 0.50 mh | CO353013 |
| 10 | 35 | Reactor 3-phase 0.40 mh | CO353014 |
| 15 | 45 | Reactor 3-phase 0.30 mh | CO353015 |
| 20 | 55 | Reactor 3-phase 0.25 mh | CO353016 |
| 25 | 80 | Reactor 3-phase 0.20 mh | CO353017 |
| 30 | 80 | Reactor 3-phase 0.20 mh | CO353017 |
| 40 | 100 | Reactor 3-phase 0.15 mlh | CO470654 |
| 50 | 130 | Reactor 3-phase 0.10 mh | CO353018 |
| 60 | 160 | Reactor 3-phase 0.075 mh | CO470058 |

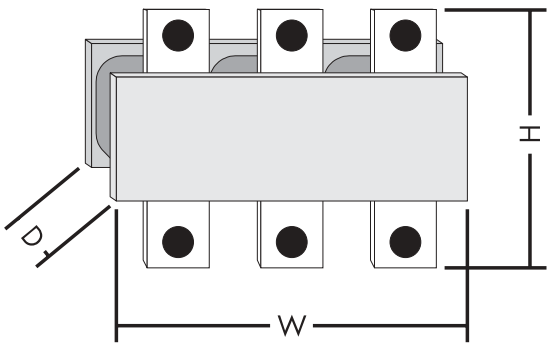
## 460 VAC Reactors

| Hp | Amp | Description | Catalog No. |
|---|---|---|---|
| 1 | 2 | Reactor 3-phase 12 mh | CO470650 |
| 2 | 4 | Reactor 3-phase 6.50 mh | CO470651 |
| 3 | 8 | Reactor 3-phase 5.00 mh | CO352782 |
| 5 | 8 | Reactor 3-phase 3.00 mh | CO470652 |
| 7.5 | 12 | Reactor 3-phase 2.50 mh | CO352783 |
| 10 | 18 | Reactor 3-phase 1.50 mh | CO352785 |
| 15 | 25 | Reactor 3-phase 1.20 mh | CO352786 |
| 20 | 35 | Reactor 3-phase 0.80 mh | CO352901 |
| 25 | 35 | Reactor 3-phase 0.80 mh | CO352901 |
| 30 | 45 | Reactor 3-phase 0.70 mh | CO352902 |
| 40 | 55 | Reactor 3-phase 0.50 mh | CO352903 |
| 50 | 80 | Reactor 3-phase 0.40 mh | CO352904 |
| 60 | 80 | Reactor 3-phase 0.40 mh | CO352904 |
| 75 | 100 | Reactor 3-phase 0.30 mh | CO352905 |
| 100 | 130 | Reactor 3-phase 0.20 mh | CO352906 |
| 125 | 160 | Reactor 3-phase 0.15 mh | CO470057 |
| 150 | 200 | Reactor 3-phase 0.11 mh | CO470045 |
| 200 | 250 | Reactor 3-phase 0.09 mh | CO470046 |
| 250 | 320 | Reactor 3-phase 0.075 mh | CO470047 |
| 300 | 400 | Reactor 3-phase 0.06 mh | CO470048 |
| 350 | 500 | Reactor 3-phase 0.05 mh | CO470049 |
| 400 | 500 | Reactor 3-phase 0.05 mh | CO470049 |
| 500 | 600 | Reactor 3-phase 0.04 mh | CO470050 |

## Dimensions

| Catalog Number | Height | Width | Depth | Weight |
|---|---|---|---|---|
| CO353010 | 3.1(79) | 6(152) | 4.8(122) | 8(3.2) |
| CO353011 | 3.1(79) | 6(152) | 4.8(122) | 7(3.1) |
| CO353012 | 3.1(79) | 6(152) | 4.8(122) | 9(4.0) |
| CO353013 | 3.4(86) | 7.2(183) | 5.6(142) | 11(5.0) |
| CO353014 | 3.8(97) | 7.2(183) | 5.6(142) | 14(6.3) |
| CO353015 | 4.8(122) | 9.0(229) | 7.0(178) | 23(10) |
| CO353016 | 4.0(102) | 9.0(229) | 7.0(178) | 24(11) |
| CO353017 | 5.6(142) | 10.8(274) | 8.2(208) | 43(19) |
| CO353018 | 4.8(122) | 9.0(229) | 7.0(178) | 30(14) |
| CO470650 | 2.8(71) | 4.4(112) | 4.0(102) | 4(1.9) |
| CO470651 | 2.9(72) | 4.4(112) | 4.0(102) | 4(1.9) |
| CO470652 | 3.1(79) | 6.0(152) | 4.8(122) | 7(3.2) |
| CO470653 | 2.9(72) | 4.4(112) | 4.0(102) | 4(1.9) |
| CO470654 | 5.6(142) | 10.8(274) | 8.2(208) | 47(21) |
| CO353007 | 3.6(92) | 4.4(112) | 4.0(102) | 6(2.7) |
| CO353009 | 3.4(86) | 6.0(152) | 3.4(86) | 13(5.9) |
| CO352782 | 3.4(86) | 6.0(152) | 3.4(86) | 5.0(11) |
| CO352783 | 3.1(79) | 6.0(152) | 4.8(122) | 10(4.5) |
| CO352785 | 3.4(86) | 6.0(152) | 4.8(122) | 12(5.4) |
| CO352786 | 3.4(86) | 7.2(183) | 5.6(142) | 14(6.3) |
| CO352901 | 3.8(97) | 7.2(183) | 5.7(145) | 16(7.3) |
| CO352902 | 4.8(122) | 9.0(229) | 7.0(178) | 28(13) |
| CO352903 | 4.8(122) | 9.0(229) | 7.0(178) | 27(12) |
| CO352904 | 5.6(142) | 10.8(274) | 8.3(211) | 51(23) |
| CO352905 | 5.8(147) | 10.8(274) | 8.2(208) | 51(23) |
| CO352906 | 5.8(147) | 10.8(274) | 8.4(213) | 58(26) |
| CO470057 | 5.6(142) | 10.8(274) | 8.4(213) | 22(50) |
| CO470045 | 6.3(160) | 10.8(274) | 8.4(213) | 31(67) |
| CO470046 | 6.7(170) | 14.4(366) | 11.2(284) | 45(106) |
| CO470047 | 6.7(170) | 14.4(366) | 11.2(284) | 57(125) |
| CO470048 | 7.3(185) | 14.4(366) | 11.2(284) | 71(155) |
| CO470049 | 7.8(198) | 14.4(366) | 11.3(287) | 82(180) |
| CO470050 | 8.3(211) | 14.4(366) | 11.3(287) | 96(210) |

All dimensions are in inches (mm) and weights are in Lb.(Kg).



# DC Accessories

## Three-Phase Line Reactors

These reactors are intended for use with the 590 Series three-phase controllers. They may be used when voltage transformation or supply isolation is not required. Line reactors:

– Reduce the level of voltage notching on the supply
– Limit total radiated RF interference
– Reduce current spikes in the supply lines during commutation of the SCR bridge.

**Dimensions**

| Amps | Height (H) | Width (W) | Depth (D) | Weight |
|---|---|---|---|---|
| 35 | 4.5 (114) | 6.1 (155) | 4.75 (121) | 8 (3.6) |
| 70 | 5.5 (140) | 6.1 (155) | 4.75 (121) | 11 (5.0) |
| 110 | 5.5 (140) | 6.1 (155) | 4.75 (121) | 15 (6.8) |
| 180 | 13.0 (330) | 7.5 (191) | 6.25 (159) | 27 (12.3) |
| 250 | 15.0 (380) | 11.0 (280) | 10.0 (255) | |
| 360 | 15.0 (380) | 11.0 (280) | 10.0 (255) | |
| 550 | 15.7 (398) | 14.5 (366) | 12.0 (306) | |
| 720 | 15.7 (398) | 14.5 (366) | 12.0 (306) | |

All dimensions are in inches (mm) and weights are in Lb. (Kg).

**Compact Design**

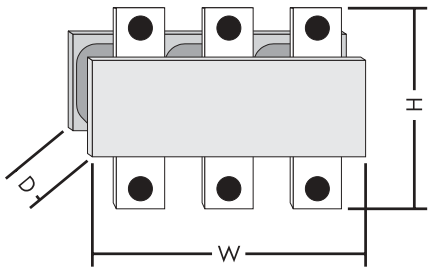
**UL and CSA approvals through 110A**

**Rating for 230 and 480 VAC supplies**

**Tab terminal connections**

**Horsepower**

| 230VAC | 460VAC | DC Amps | Description | Catalog No. |
|---|---|---|---|---|
| 10 | 20 | 35 | Reactor 50 µH (UL/CSA) | CO352378 |
| 20 | 40 | 70 | Reactor 50 µH (UL/CSA) | CO352379 |
| 30 | 60 | 110 | Reactor 50 µH (UL/CSA) | CO352380 |
| 50 | 100 | 180 | Reactor 50 µH | CO055255 |
| 60 | 150 | 250 | Reactor 25 µH | CO057960 |
| 100 | 200 | 360 | Reactor 25 µH | CO057961 |
| 150 | 300 | 550 | Reactor 25 µH | CO057962 |
| 200 | 400 | 720 | Reactor 25 µH | CO057963 |




## Three-Phase Line Reactors for EMC

These reactors are used with EMC filters (see page 26) for DC controllers that must meet CE standards.

**CE approved**

**Ratings to 180A**

**Three-Phase Line Reactors**

| Size* DC Amps | Catalog No. |
|---|---|
| 15 | CO466449U015 |
| 40 | CO466449U040 |
| 70 | CO463037 |
| 110 | CO463038 |
| 180 | CO463039 |

*Above 180 Amps use the standard line reactors listed above

## Armature DC Contactor Option

For use with 590+ frames 1 and 2, this assembly provides a 3-pole DC loop contactor (includes dynamic braking contact) that isolates the motor from the drive. Dynamic Braking requires an additional braking resistor kit.

Note: Do not order with Dynamic Braking Contact Option, contact included in assembly.

**1 to 100 Hp**

**Horsepower**

| 240VDC | 500VDC | Catalog No. |
|---|---|---|
| 1 - 7.5 | 1 - 15 | 955+ADC30 |
| 10 - 15 | 20 - 30 | 955+ADC60 |
| 20 - 40 | 40 - 75 | 955+ADC130 |
| 50 | 100 | 955+ADC220 |


Telephone: 704-588-3246 Fax: 704-588-3249

# Dynamic Braking Resistors

The Dynamic Braking Resistor kits are designed for stopping a motor at full load current from base speed with 2 times motor energy, three times in rapid succession (NEMA ICS 3-302.62 Dynamic Braking Stop Option).

Dynamic braking provides a low initial cost solution when motor braking can be less precise. When braking is required frequently in the application (for example, unwinds), a regenerative drive would be a better solution.

**COMPACT DESIGN**

**ROOF / PANEL MOUNTING**

**HORSEPOWER RATED FOR EASIER SELECTION**

**INTEGRAL COVERS FOR ADDED SAFETY**

## 240 VDC DB Resistors

| Hp | Ohms | Catalog No. |
|---|---|---|
| 5 | 8.6 | CZ353160* |
| 7.5 | 6.04 | CZ353161* |
| 10 | 4.6 | CZ353162* |
| 15 | 3 | CZ353163* |
| 20 | 2 | CZ353164* |
| 25 | 2 | CZ353165* |
| 30 | 1.4 | CZ353166* |
| 40 | 1 | CZ353167* |
| 50 | 1 | CZ353168* |
| 60 | 0.742 | CZ353169 |
| 75 | 0.58 | CZ353170 |
| 100 | 0.452 | CZ353171 |
| 125 | 0.384 | CZ353172 |
| 150 | 0.325 | CZ353173* |
| 200 | 0.255 | CZ353174* |
| 250 | 0.196 | CZ353175* |
| 300 | 0.176 | CZ353176* |
| 400 | 0.137 | CZ353177* |
| 500 | 0.1 | CZ353178* |

## 500 VDC DB Resistors

| Hp | Ohms | Catalog No. |
|---|---|---|
| 3 | 62 | CZ353134* |
| 5 | 36 | CZ353135* |
| 7.5 | 36 | CZ353136* |
| 10 | 20 | CZ353137* |
| 15 | 12 | CZ353138* |
| 20 | 10 | CZ353139* |
| 25 | 7 | CZ353140* |
| 30 | 7 | CZ353141* |
| 40 | 4.5 | CZ353142* |
| 50 | 4.5 | CZ353143* |
| 60 | 4 | CZ353144* |
| 75 | 2.8 | CZ353145* |
| 100 | 2 | CZ353146* |
| 125 | 1.71 | CZ353147 |
| 150 | 1.28 | CZ353148 |
| 200 | 1.11 | CZ353149 |
| 250 | 0.768 | CZ353150 |
| 300 | 0.72 | CZ353151* |
| 400 | 0.504 | CZ353152* |
| 500 | 0.38 | CZ353153* |
| 600 | 0.38 | CZ353154* |
| 700 | 0.288 | CZ353155* |
| 800 | 0.23 | CZ353156* |
| 900 | 0.23 | CZ353157* |
| 1000 | 0.2 | CZ353158* |

Kits with an '*' require an additional dynamic braking contact.

# Dynamic Braking Contact

590+ DRV frames 1, 2 and 6+ require a separate dynamic braking contact kit if dynamic braking is required.

The kits through 100 Hp use a four-pole AC contactor pre-wired to connect to the 590+ terminals.

Above 100 Hp, kits use a single-pole DC contactor that requires 120 VAC control power to close. The dynamic braking contact must be factory installed and requires a larger panel.

The Dynamic Braking Contact Kits are designed to meet NEMA dynamic braking requirements (see Dynamic Braking Resistors above).

Note: When power is lost, the DB contactor will not close on Size 6 or larger drives.

**500 VDC RATED**

**MEET NEMA DYNAMIC BRAKING STANDARDS**

## Horsepower

| 240VDC | 500VDC | Catalog No. |
|---|---|---|
| 1 - 10 | 1 - 20 | 955 + DBC35 |
| 15 - 20 | 30 - 40 | 955 + DBC70 |
| 25 - 30 | 50 - 60 | 955 + DBC110 |
| 0 - 50 | 75 - 100 | 955 + DBC162 |
| 150 - 700 | 300 - 1500 | 955-DBC2400* |
| 800 - 1000 | 1750 - 2000 | 955-DBC3000* |

* Factory installed option only.

# DC Accessories

## 590+ DRV Control Transformer

The 590+ DRV Control Transformer option enables 590+ DRVs to be used in systems that do not use 120 VAC control power.

- Operation with 208 through 500 VAC supplies
- Mounts inside the frame 1 and 2 DRVs
- Not needed on DRVs above 100 Hp (at 500 VDC)

Add -CX suffix to the 590+ DRV part number

## Blower Motor Starter

The 590+ DRV Blower Motor Starter Option uses a manual motor circuit controller to provide motor overload and branch circuit protection for a single- or three-phase AC blower motor. The option mounts inside 590+ DRV DC Drives through 100 HP.

- UL listing and CSA certification
- Instantaneous magnetic short-circuit protection
- Thermal overload protection with adjustable trip current setting
- Start/stop-reset switching with "tripped" pushbutton indication
- Normally-open auxiliary contact wired to terminal

### Ordering Information

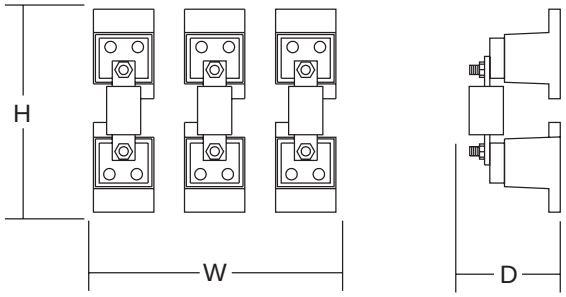
| AMPS | Catalog No. Frame 1 & 2 | Catalog No. All Other |
|---|---|---|
| 0.10-0.16 | 955 + BMS016 | 955-BMS160 |
| 0.16-0.25 | 955 + BMS025 | 955-BMS250 |
| 0.25-0.40 | 955 + BMS040 | 955-BMS40 |
| 0.40-0.63 | 955 + BMS063 | 955-BMS630 |
| 0.63-1.00 | 955 + BMS100 | 955-BMS11 |
| 1.00-1.60 | 955 + BMS160 | 955-BMS161 |
| 1.60-2.50 | 955 + BMS250 | 955-BMS251 |
| 2.50-4.00 | 955 + BMS400 | 955-BMS41 |
| 4.00-6.30 | 955 + BMS630 | 955-BMS631 |

## Controller AC Line Fuse Kits

The AC line fuse kits provide SCR protection for the 590+ Series controllers. Fuse kits protect drives against transients that may occur in drive supply lines. Each fuse kit contains three high speed fuses with fuseblocks.

Note:
(a) The customer is responsible for complying with all local codes when installing these fuse kits. Eurotherm Drives will not accept any responsibility for mounting the fuse kits improperly.

(b) The kits do not include panel mounting hardware.




- All UL listed or recognized components
- CSA certified
- 300 to 800 amperes
- 500 VAC
- Compression terminal for connections

### Horsepower

| 230VAC | 460VAC | Amps | Catalog No. |
|---|---|---|---|
| 75 | 150 | 300 | 655-FK33 |
| 100 | 200 | 400 | 655-FK43 |
| 125 | 250 | 500 | 655-FK53 |
| 150 | 300 | 600 | 655-FK63* |
| 200 | 400 | 800 | 655-FK83* |

*Require ring terminals for connection.

### Dimensions

| Fuse Kit | Height (H) | Width (W)* | Depth (D) |
|---|---|---|---|
| 655-FK33, -FK353, -FK43 | 8.75 (222) | 8.56 (217) | 4.44 (113) |
| 655-FK63, -FK83 | 7.5 (191) | 9.00 (229) | 3.44 (87) |

* Widths include minimal space for electrical clearance to equipment mounted next to the fuse kits

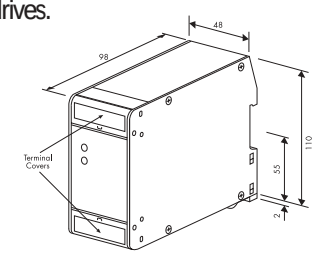

Telephone: 704-588-3246 Fax: 704-588-3249

# DC Accessories

## Armature Voltage Feedback Unit 5590

- SUITABLE FOR MOTOR VOLTAGES 100 - 550 V
- IR COMPENSATION UP TO 11%
- DIN RAIL MOUNTING
- BI-DIRECTIONAL OPERATION
- TRIM OUTPUT POTENTIOMETER

This unit provides a means of isolating and attenuating motor armature voltage to levels compatible with drive input signals to give cost effective voltage feedback. It is designed specifically for use with analog drives.




Ordering Information

| Description | Catalog No. |
|---|---|
| Armature voltage feedback unit | 5590 |

## Diagnostic Unit 5570

- 3 DIGIT LCD READOUT
- ACCESS TO 27 TEST POINTS
- OSCILLOSCOPE / RECORDER OUTPUT

An easy to use hand held diagnostic unit. The 5570 can be used in conjunction with the 514C and 5401 field controller. It gives access to 27 key test points on the drives, rapidly decreasing commissioning time and simplifying trouble shooting.

Ordering Information

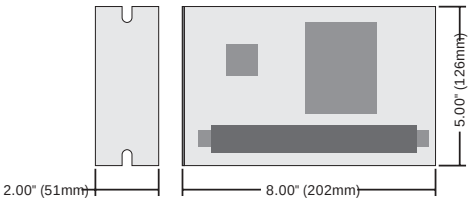
| Description | Catalog No. |
|---|---|
| Diagnostic unit | 5570 |

## Three-Phase Line Filter

- RATING FOR 230 AND 480 VAC SUPPLIES
- 1/4 INCH TAB TERMINAL CONNECTIONS
- PANEL MOUNTED

The filter provides additional protection against spikes induced on the AC line by DC controllers on 460 VAC systems. It is recommended when accessories (such as blower motors) are connected to the same main supply as the controller without isolation.

The completely wired fuse kit contains fuses and fuseblocks to provides branch circuit protection for the line filter.




Ordering Information

| Description | Catalog No. |
|---|---|
| Three-phase line filter | LA048357 |
| Fuse kit for three-phase line filter | LA353827 |

Note: A line filter is included in all 590+ DRVs above 100 horsepower (at 500 VDC)

# EMC Filters

A range of custom designed optional EMC (ElectroMagnetic Compatibility) filters are available for use with the Eurotherm Drives product range. These have been carefully designed to provide cost effective and easily implemented solutions for a variety of standard installations.

## AC and DC Drive Filters Technical Specifications

| Product Number | Rating | Filter Part Number | Filter Style Mounting Kit | IP40 Wall | Emission Standard | Max. Cable Length |
|---|---|---|---|---|---|---|
| **AC Drive Filters** | | | | | | |
| 650/ 650V (200v) | Frame 1, 2,& 3 | Order with Drive | INT | – | B | 25m* |
| 650/650V (400v) | Frame 1, 2,& 3 | Order with Drive | INT | – | A | 25m* |
| 605/690+ | Frame A & B | Order with Drive | INT | – | B | 25m* |
| **Filters for ONLY Grounded Neutral (TN) AC supplies up to 460V** | | | | | | |
| 650V/690+ | Frame C | CO465513U036 | FP | BA465514U036 | B | 50m |
| 650V/690+ | Frame D | CO465513U070 | FP | BA465514U070 | B | 50m |
| 650V/690+ | Frame E | CO465513U105 | FP | BA465514U105 | B | 50m |
| 650V/690+ | Frame F | CO465513U215 | FP | – | B | 50m |
| **Filters for Grounded Neutral (TN) or Ungrounded (IT) AC supplies up to 480V** | | | | | | |
| 650V/690+ | Frame C | CO465515U036 | FP | BA465514U036 | A | 50m |
| 650V/690+ | Frame D | CO465515U070 | FP | BA465514U070 | A | 50m |
| 650V/690+ | Frame E | CO465515U105 | FP | BA465514U105 | A | 50m |
| 650V/690+ | Frame F | CO465515U215 | FP | – | A | 50m |
| 690+ | Frame G | CO464517 | MOD | – | A | 300m |
| 690+ | Frame H | CO464517 (2X) | MOD | – | A | 300m |
| 690+ | Frame J | CO464517 (2X) | MOD | – | A | 300m |
| **DC Drive Filters** | | | | | | |
| 506/507/508 | 3,6,12A | CO389115 | FP | - | B | 50m |
| 512C/ 514C | 4,8,16A | CO389113 | FP | - | B | 50m |
| 512C/ 514C | 32A | CO389114 | FP | - | B | 50m |
| 590+/955+ | 15A | CO466516U015 | MOD | - | A | 50m |
| 590+/955+ | 35,40A | CO466516U040 | MOD | - | A | 50m |
| 590+/955+ | 70A | CO466534U070 | MOD | - | A | 50m |
| 590+/955+ | 110A | CO466534U110 | MOD | - | A | 50m |
| 590+/955+ | 165A | CO466534U165 | MOD | - | A | 50m |
| 590+/955+ | 180A | CO388965U180 | MOD | - | A | 50m |
| 590+/955+ | 270, 360A | CO389456 | MOD | - | A | 50m |
| 590+/955+ | 450A | CO389456 (2X) | MOD | - | A | 50m |
| 590+/955+ | 720, 800A | CO389456 (3X) | MOD | - | A | 50m |

* External filters available for cable runs longer than those specified
Please refer to you local Eurotherm Drives sales office for details of EMC filters > 800A
The 590+ filters must be used in conjunction with the appropriate 2% impedance ac line choke (see page 22)
INT = Internal Filter, factory installed within the drive module.
FP = Space saving Footprint Filter that fits behind the drive.
MOD = Module filter that must be mounted adjacent to the drive.
Emission Standard A = EN55011 Class A (Industrial EMC environment of EN50081-2)
Emission Standard B = EN55011 Class B (Residential, commercial and light industrial EMC environment of EN50081-1)


Telephone: 704-588-3246 Fax: 704-588-3249

# Fiber Optic Accessories

## Plastic Fiber Optic Cable

Eurotherm Drives flexible acrylic fiber optic cable has a minimum bending radius of 1.5 inches. Terminations are made simply by snapping together the two parts of the plastic fiber optic connectors with a pair of pliers (no special tools are required). The connectors are color-coded: Transmit - red; Receive - black.

**SIMPLE INSTALLATION**

**TRANSMIT 196 FEET (60 METERS)**

**ELECTRICALLY NOISE IMMUNE**

Ordering Information

| Description | Catalog No. |
|---|---|
| Composite fiber optic cable 165 ft (50m) acrylic | CM059748U050 |
| Composite fiber optic cable 660 ft (200m) acrylic | CM059748U200 |
| Composite fiber optic cable 1650 ft (500m) acrylic | CM059748U500 |

## Composite Fiber Optic Cable

Composite fiber optic cable combines a single strand of acrylic fiber optic cable and two copper wire cables. It is used in applications where repeater modules are needed. The composite cable carries the fiber optic signal and a 24V supply to the repeater module.

| Description | Catalog No. |
|---|---|
| Duplex fiber optic cable 99 ft (30m) acrylic | CM352278U030 |
| Duplex fiber optic cable 495 ft (150m) acrylic | CM352278U152 |
| Duplex fiber optic cable 990 ft (300m) acrylic | CM352278U305 |

## Duplex Fiber Optic Cable

Duplex fiber optic cable consists of two parallel strands of acrylic cable bonded together. It is often used when remote modules are installed in a system; for example, in an operator station.

| Description | Catalog No. |
|---|---|
| Single fiber optic cable 99 ft (30m) acrylic | CM056316U030 |
| Single fiber optic cable 495 ft (150m) acrylic | CM056316U152 |
| Single fiber optic cable 1000 ft (305m) acrylic | CM056316U305 |

## Single Strand Fiber Optic Cable

Single strand acrylic fiber optic cable is used inside drive enclosures.

Ordering Information

| Description | Catalog No. |
|---|---|
| Black fiber optic connector | C1055070 |
| Red fiber optic connector | C1055069 |
| Cutter kit f/acrylic fiber optic cable | LA385204 |

## Glass Fiber Optic Cable

These components are used with the acrylic fiber optic cable.

**UL APPROVED OPTIC FIBER CABLE-RISER**

**5000 FEET TRANSMISSION DISTANCE**

**MHZ-KM BANDWIDTH**

The flexible glass fiber optic cable ships with one standard ST style connector installed. Glass fiber optic cable is used for sending data over long distances. Glass cable is recommended in cases where distances exceed 328 feet (100 meters) or installed through high temperature areas.

### Ordering Information

Order one connector with each cable assembly. Additional cable anchors (CI352673) and crimp sleeves (CI352674) are often required when assembling ST connectors.

Note: Glass Termination Kit (JA352597) is needed to assemble the connectors for the glass fiber optic cable.

Ordering Information

| Description | Catalog No. |
|---|---|
| Cable assembly 82 ft (25m) | CM352692U251 |
| Cable assembly 165 ft (50m) | CM352692U501 |
| Cable assembly 247 ft (75m) | CM352692U751 |
| Cable assembly 330 ft (100m) | CM352692U102 |
| Cable assembly 495 ft (150m) | CM352692U152 |
| Cable assembly 660 ft (200m) | CM352692U202 |
| Cable assembly 825 ft (250m) | CM352692U252 |
| Cable assembly 990 ft (300m) | CM352692U302 |
| Cable assembly 1320 ft (400m) | CM352692U402 |
| Cable assembly 1650 ft (500m) | CM352692U502 |
| Cable assembly 3300 ft (1000m) | CM352692U103 |
| Glass Termination Kit | JA352597 |
| Glass ST Connector | CI352599 |
| Cable Anchor (spares for assembling CI351599) | CI352673 |
| Crimp Sleeve (spares for assembling CI351599) | CI352674 |

# General Accessories

## Signal Isolators

These isolators are DIN rail mounted devices that provide electrical isolation between its input and output circuitry.

Input can be from 10mV to 100V or 1mA to 100mA. Output can either be voltage (0-5V, 0-10V, ±5V or ±10V) or current (0-1mA, 0-20mA, or 4-20mA).

**PROVIDES A FULLY ISOLATED DC OUTPUT IN PROPORTION TO A DC INPUT**

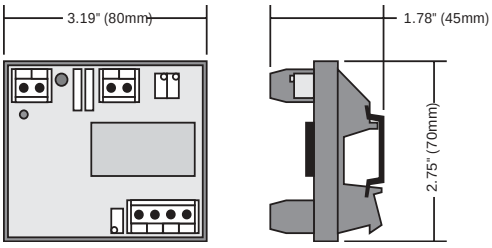
**EASY FIELD CONFIGURABLE INPUT AND OUTPUT RANGES**

**ULTRA SLIM 12.6MM (0.5") HOUSING MOUNTS ON DIN RAIL FOR HIGH DENSITY INSTALLATION**

| Ordering Information | |
|---|---|
| **Description** | **Catalog No.** |
| Universal Input/Voltage output | LA470509 |
| Universal Input/Current output | LA470554 |

## 5530 Loadcell Amplifier

The 5530 loadcell amplifier scales the high level output signal from a strain gauge or LVDT loadcells for use as tension indication or as a feedback signal for material tension control. The force created by tension in the web is converted into a DC voltage that is proportional to web tension and the supply voltage.




**–10 TO +10 VDC OUTPUT**

**OFFSET AND SPAN FOR CALIBRATION**

**EXCITE POTENTIOMETER FOR SCALING THE LOADCELL SUPPLY VOLTAGE**

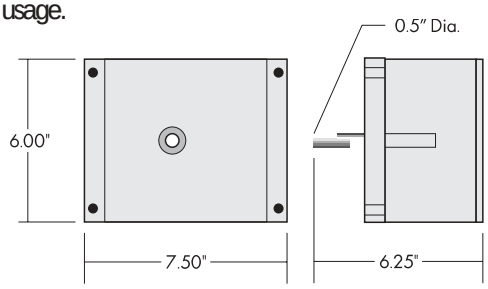
**ADJUSTABLE BANDWIDTH AND FILTER**

**DIN RAIL MOUNTABLE AND WIRED TO CUSTOMER TERMINALS**

| Ordering Information | |
|---|---|
| **Description** | **Catalog No.** |
| Amplifier for LVDT load cell | 5530/1 |
| Amplifier for strain gauge load cell | 5530/2 |

## Non-Contact Dancer Position Potentiometer

This potentiometer provides 0 10 10 volt dancer position feedback. It is designed to be mounted on the machine to provide material take-up control. The design eliminates dead spots common after extended usage.




**NEMA 4 CONSTRUCTION**

**300 DEGREE TRAVEL**

**HEAVY DUTY TERMINALS**

| Ordering Information | |
|---|---|
| **Description** | **Catalog No.** |
| Dancer position non-contact potentiometer | DD353481 |
| Dancer position non-contact potentiometer with limit switches | DD353482 |

## L5231 Fiber Optic Light Meter

The L5231 measures light levels in both plastic and glass fiber optic cable. This meter is invaluable during start-up to ensure trouble-free communications

**STURDY, HAND-HELD DESIGN**

**CONTAINS PLASTIC AND GLASS CABLE ADAPTERS**

| Ordering Information | |
|---|---|
| **Description** | **Catalog No.** |
| Light Meter | L5231 |
| Light Meter Instructions | HW351772 |
| T&B Adapter for Light Meter | JB470146 |
| ST Adapter for Light Meter | JB352598 |



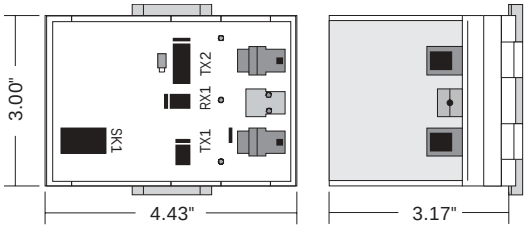
Telephone: 704-588-3246 Fax: 704-588-3249

# General Accessories

## 5703 Peer-to-Peer Communications Module

- 16-BIT REFERENCE SIGNAL
- CONFIGURATION FOR MASTER/SLAVE OPERATION
- FULLY CONFIGURABLE INPUT AND OUTPUT SIGNALS
- ADDITIONAL FIBER OPTIC TRANSMITTER
- DIN RAIL MOUNTABLE

The 5703 allows peer-to-peer communication between 590+ or 690+ controllers over a fiber optic cable. It can access any readable 590+ or 690+ Series controller parameter, including speed, current and feedback signals. It allows users to implement extremely accurate draw or ratio schemes. One 5703 is required per drive when digital master or follower capability is required.



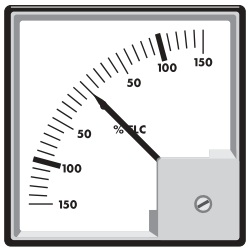

Ordering Information

| Description | Catalog No. |
|---|---|
| RS-232 peer-to-peer comms | 5703/1 |

## 5507 Analog Panel Meters

- STANDARD QUARTER DIN SQUARE CUTOUT
- SINGLE QUADRANT AND CIRCULAR SCALE VERSIONS

5507 meters provide NEMA 1 protection when mounted in an enclosure. They connect directly to the analog outputs on drives for speed or load indication.



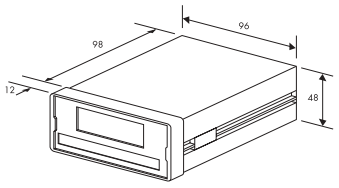

Ordering Information

| Description | Catalog No. |
|---|---|
| Analog load meter (0 -150%) | 5507/1/1/L1 |
| Analog load meter (150-0-150%)-Center zero | 5507/1/2/L2 |
| Analog load meter (150-0-150%)-Circular scale | 5507/1/3/L2 |
| Analog speed meter (0-100%) | 5507/1/1/S1 |
| Analog tension meter (0-100%) | 5507/1/1/T1 |
| Quadrant Meter, uncalibrated | 5507/1/1 |
| Quadrant Meter with Center Zero, uncalibrated | 5507/1/2 |
| Cirscale Meter, uncalibrated | 5507/1/3 |

## Digital Panel Meter Type 5512

- DIGIT DISPLAY TO 1999 ±0.05% FS ACCURACY
- 3 POSITION DECIMAL POINT
- ±5V TO ±400V DC INPUT
- RATIOMETRIC DISPLAY OF 2 ANALOG SIGNALS
- LAST DIGIT FLICKER INHIBIT
- 90-130V OR 180-260V AC SUPPLY
- CE MARKED TO EN61010 (1994)

The extremely versatile 5512 Digital panel meter is ideal for a wide range of signal display applications. Front access multi turn scaling, offset potentiometers and slide in custom legend guarantee minimum set up time.




Ordering Information

| Description | Catalog No. |
|---|---|
| 5512 Digital Panel Meter | DA054339 |

# Accessories

## DC Drive / Motor Packages 1 to 1000 Hp

### TECHNICAL SPECIFICATION

See the 590+ section for drive specifications.
**Ambient** – 0-40°C (32-104°F)
**Altitude** – 1000m (3300 ft.) ASL
**Insulation** – Class F
**Overload** – 150 percent for 60 seconds

DC Drive/Motor packages include a matched 590+ DRV and DC motor. Optional C-face mounting and conduit box location selections assure the package meets your physical requirements. Speed feedback options let you meet any performance demand.

The high efficiency, shunt wound DC motor is especially designed for use with variable speed DC drives. These standard motors are fully guarded for safe operation. Forced ventilation assures reliable performance over the entire speed range. Just add a blower motor starter and your design is complete.

In addition, this package provides an additional discount over the price of separately ordered parts.

- PREMIUM QUALITY AND VALUE
- PERFORMANCE-MATCHED COMBINATION
- SINGLE-SOURCE SHOPPING FOR YOUR CUSTOMER
- BEST DC DRIVE MOTOR IN THE INDUSTRY
- ADDITIONAL DISCOUNT ON MOTOR/DRIVE COMBINATION
- COMPACT SQUARE FRAME DESIGN


Telephone: 704-588-3246 Fax: 704-588-3249

## 500 VDC 1750 RPM Base Speed

| HP | Part Number | Encl | Frame | Max RPM |
|---|---|---|---|---|
| 1 | 955+8R0001M | DPFG-FV | C1811ATZ | 2300 |
| 2* | 955+8R0002M | DPFG-FV | C1811ATZ | 2300 |
| 3* | 955+8R0003M | DPFG-FV | C1811ATZ | 2300 |
| 5* | 955+8R0004M | DPFG-FV | C1811ATZ | 2300 |
| 7.5* | 955+8R0007M | DPFG-FV | C1811ATZ | 2300 |
| 10* | 955+8R0010M | DPFG-FV | C1811ATZ | 2300 |
| 15* | 955+8R0015M | DPFG-FV | SC2113ATZ | 2300 |
| 20* | 955+8R0020M | DPFG-FV | SC2113ATZ | 2300 |
| 25* | 955+8R0025M | DPFG-FV | MC2113ATZ | 2300 |
| 30* | 955+8R0030M | DPFG-FV | LC2113ATZ | 2300 |
| 40* | 955+8R0040M | DPFG-FV | MC2115ATZ | 2100 |
| 50* | 955+8R0050M | DPFG-FV | LC2115ATZ | 2100 |
| 60* | 955+8R0060M | DPFG-FV | LC2512ATZ | 2100 |
| 75* | 955+8R0075M | DPFG-FV | C2514ATZ | 2100 |
| 100* | 955+8R0100M | DPFG-FV | C2515ATZ | 2100 |
| 125* | 955+8R0125M | DPFG-FV | C2813ATZ | 2100 |
| 150* | 955+8R0150M | DPFG-FV | C2815ATZ | 2100 |
| 200* | 955+8R0200M | DPFG-FV | C3214ATZ | 2100 |
| 250 | 955+8R0250M | DPFG-FV | LC3612ATZ | 2100 |
| 300* | 955+8R0300M | DPFG-FV | LC3612ATZ | 2100 |
| 400* | 955+8R0400M | DPFG-FV | MC4013ATZ | 2100 |
| 500* | 955+8R0500M | DPFG-FV | C4412ATZ | 2050 |
| 600 | 955+8R0600M | DPFG-FV | B587ATZ | 1900 |
| 700 | 955+8R0700M | DPFG-FV | BB587ATZ | 1900 |
| 800 | 955+8R0800M | DPFG-FV | B685ATZ | 1925 |

## 500 VDC 1150 RPM Base Speed

| HP | Part Number | Encl | Frame | Max RPM |
|---|---|---|---|---|
| 1 | 955+8R0001L | DPFG-FV | C1811ATZ | 2000 |
| 2 | 955+8R0002L | DPFG-FV | C1811ATZ | 2000 |
| 3 | 955+8R0003L | DPFG-FV | C1811ATZ | 1900 |
| 5 | 955+8R0004L | DPFG-FV | C1811ATZ | 1900 |
| 7.5 | 955+8R0007L | DPFG-FV | C1812ATZ | 2300 |
| 10 | 955+8R0010L | DPFG-FV | SC2113ATZ | 2300 |
| 15 | 955+8R0015L | DPFG-FV | MC2113ATZ | 2100 |
| 20 | 955+8R0020L | DPFG-FV | LC2113ATZ | 2000 |
| 25 | 955+8R0025L | DPFG-FV | LC2115ATZ | 2000 |
| 30* | 955+8R0030L | DPFG-FV | LC2115ATZ | 2300 |
| 40* | 955+8R0040L | DPFG-FV | L2512ATZ | 2000 |
| 50* | 955+8R0050L | DPFG-FV | C2514ATZ | 2000 |
| 60* | 955+8R0060L | DPFG-FV | C2515ATZ | 2000 |
| 75* | 955+8R0075L | DPFG-FV | C2815ATZ | 2000 |
| 100* | 955+8R0100L | DPFG-FV | C2815ATZ | 1850 |
| 125* | 955+8R0125L | DPFG-FV | C3214ATZ | 2000 |
| 150* | 955+8R0150L | DPFG-FV | LC3612ATZ | 2000 |
| 200* | 955+8R0200L | DPFG-FV | C37613ATZ | 2000 |
| 250* | 955+8R0250L | DPFG-FV | MC4013ATZ | 2000 |
| 300* | 955+8R0300L | DPFG-FV | LC4013ATZ | 2000 |
| 400* | 955+8R0400L | DPFG-FV | C4413ATZ | 1600 |
| 500* | 955+8R0500L | DPFG-FV | C4414ATZ | 1680 |
| 600 | 955+8R0600L | DPFG-FV | B589ATZ | 1650 |
| 700 | 955+8R0700L | DPFG-FV | BB5810ATZ | 1500 |
| 800 | 955+8R0800L | DPFG-FV | B687ATZ | 1350 |
| 900 | 955+8R0900L | DPFG-FV | B842AT | 1350 |
| 1000 | 955+8R1000L | DPFG-FV | B842AT | 1200 |

## 240 VDC 1750 RPM Base Speed

| HP | Part Number | Encl | Frame | Max RPM |
|---|---|---|---|---|
| 1 | 955+4R0001M | DPFG-FV | DC189ATZ | 2300 |
| 2 | 955+4R0002M | DPFG-FV | DC189ATZ | 2300 |
| 3* | 955+4R0003M | DPFG-FV | DC189ATCZ | 2300 |
| 5* | 955+4R0004M | DPFG-FV | C1811ATCZ | 2300 |
| 7.5* | 955+4R0007M | DPFG-FV | C1811ATZ | 2300 |
| 10* | 955+4R0010M | DPFG-FV | C1812ATZ | 2300 |
| 15* | 955+4R0015M | DPFG-FV | SC2113ATZ | 2300 |
| 20* | 955+4R0020M | DPFG-FV | SC2113ATZ | 2300 |
| 25* | 955+4R0025M | DPFG-FV | MC2113ATZ | 2300 |
| 30* | 955+4R0030M | DPFG-FV | LC2113ATZ | 2300 |
| 40* | 955+4R0040M | DPFG-FV | LC2115ATZ | 2300 |
| 50 | 955+4R0050M | DPFG-FV | MC2512ATZ | 2300 |
| 60 | 955+4R0060M | DPFG-FV | LC2512ATZ | 2000 |
| 75 | 955+4R0075M | DPFG-FV | MC2812ATZ | 2000 |
| 100 | 955+4R0100M | DPFG-FV | LC2812ATZ | 2000 |
| 125 | 955+4R0125M | DPFG-FV | LLC3212ATZ | 2000 |

* Note: Packages normally available from stock.

Replace the 'R' with 'N' for non-regenerative drive.

## 240 VDC 1150 RPM Base Speed

| HP | Part Number | Encl | Frame | Max RPM |
|---|---|---|---|---|
| 1 | 955+4R0001L | DPFG-FV | DC189ATZ | 2000 |
| 2 | 955+4R0002L | DPFG-FV | DC189ATZ | 2000 |
| 3 | 955+4R0003L | DPFG-FV | DC189ATZ | 2000 |
| 5 | 955+4R0004L | DPFG-FV | C1811ATZ | 2000 |
| 7.5 | 955+4R0007L | DPFG-FV | C1812ATZ | 2000 |
| 10 | 955+4R0010L | DPFG-FV | SC2113ATZ | 2000 |
| 15 | 955+4R0015L | DPFG-FV | MC2113ATZ | 2000 |
| 20 | 955+4R0020L | DPFG-FV | LC2113ATZ | 2000 |
| 25 | 955+4R0025L | DPFG-FV | LC2115ATZ | 2000 |
| 30 | 955+4R0030L | DPFG-FV | LC2115ATZ | 2000 |
| 40 | 955+4R0040L | DPFG-FV | LC2512ATZ | 2000 |
| 50 | 955+4R0050L | DPFG-FV | C2514ATZ | 2000 |
| 60 | 955+4R0060L | DPFG-FV | C2515ATZ | 2000 |
| 75 | 955+4R0075L | DPFG-FV | C3813ATZ | 2000 |
| 100 | 955+4R0100L | DPFG-FV | LLC3212ATZ | 2000 |
| 125 | 955+4R0125L | DPFG-FV | LC3214ATZ | 2000 |
| 150 | 955+4R0150L | DPFG-FV | LC3513ATZ | 2000 |
| 200 | 955+4R0200L | DPFG-FV | C4011ATZ | 2000 |

## MOTOR OPTIONS

**Conduit Box Location Option** - The default conduit box location is F1. This is included in the package part number. To specify an F2 location, add a '-2' suffix to the part number.

**C-Face Option** - To add a C-face bracket to the motor, add a '-C' suffix to the part number. (frames from DC180ATZ to C360ATZ only).

**Feedback Option** - This option includes the feedback device, interface card, coupling, adaptor and mounting. Select only one feedback option per package.

The **encoder** option is a 5 to 15 VDC, 1024 PPR encoder; add a –E1 suffix to the package part number.

The **tachometer** option is a 50 volts per 1000 RPM tachometer rated to 5000 RPM maximum; add a –DT suffix to the package part number.

**Example**–Choose 955+8R0050M-2C-E1 for a 50 Hp, 500 VDC Regenerative drive and 1750 RPM base speed motor with a F2 conduit box, C-FACE option, and a 1024 encoder and encoder feedback card.

# Isolation Transformers

Drive isolation transformers are designed to operate with SCR controlled drives. They can withstand SCR duty cycles and isolate the power source from SCR noise. The inherent impedance the transformer provides benefits the SCR controller and limits the rate of rise of transient currents.

- UL listing
- Design to applicable NEMA, ANSI, and IEEE standards
- Dry-type, Class AA, ventilated NEMA 2 enclosure for indoor use
- Floor mounting (optional wall mounting brackets up to 51 kVA)
- 60 Hertz, three-phase design

### Ordering Information

All transformer modifications must be specified at time of order. They are not field installable.

## MODIFICATIONS

Eurotherm Drives offers several modifications to customize the isolation transformers to your application.

### Ordering Information

See the transformer modifications section when ±2.5% taps, special voltages, or 50 Hertz are required.

### Additional ±2.5% taps

±2.5% taps are installed on the high-voltage winding to correct for high/low voltage supplies.

### 50 Hertz Option

The transformers listed are designed for only 60 Hertz supplies. Select this option when using a 50 Hertz supply.

**230:230 Three-phase Isolation Transformers**

| Hp | kVA | Description | Catalog No. |
|---|---|---|---|
| 5 | 7.5 | Isolation transformer | 202-4451 |
| 7.5 | 11 | Isolation transformer | 202-44751 |
| 10 | 14 | Isolation transformer | 202-4412 |
| 15 | 20 | Isolation transformer | 202-44152 |
| 20 | 27 | Isolation transformer | 202-4422 |
| 25 | 34 | Isolation transformer | 202-44252 |
| 30 | 40 | Isolation transformer | 202-4432 |
| 40 | 51 | Isolation transformer | 202-4442 |
| 50 | 63 | Isolation transformer | 202-4452 |
| 60 | 75 | Isolation transformer | 202-4462 |
| 75 | 93 | Isolation transformer | 202-44752 |
| 100 | 118 | Isolation transformer | 202-4413 |

**460:230 Three-phase Isolation Transformers**

| Hp | kVA | Description | Catalog No. |
|---|---|---|---|
| 5 | 7.5 | Isolation transformer | 202-8451 |
| 7.5 | 11 | Isolation transformer | 202-84751 |
| 10 | 14 | Isolation transformer | 202-8412 |
| 15 | 20 | Isolation transformer | 202-84152 |
| 20 | 27 | Isolation transformer | 202-8422 |
| 25 | 34 | Isolation transformer | 202-84252 |
| 30 | 40 | Isolation transformer | 202-8432 |
| 40 | 51 | Isolation transformer | 202-8442 |
| 50 | 63 | Isolation transformer | 202-8452 |
| 60 | 75 | Isolation transformer | 202-8462 |
| 75 | 93 | Isolation transformer | 202-84752 |
| 100 | 118 | Isolation transformer | 202-8413 |

**230:460 Three-phase Isolation Transformers**

| Hp | kVA | Description | Catalog No. |
|---|---|---|---|
| 5 | 7.5 | Isolation transformer | 202-4851 |
| 7.5 | 11 | Isolation transformer | 202-48751 |
| 10 | 14 | Isolation transformer | 202-4812 |
| 15 | 20 | Isolation transformer | 202-48152 |
| 20 | 27 | Isolation transformer | 202-4822 |
| 25 | 34 | Isolation transformer | 202-48252 |
| 30 | 40 | Isolation transformer | 202-4832 |
| 40 | 51 | Isolation transformer | 202-4842 |
| 50 | 63 | Isolation transformer | 202-4852 |
| 60 | 75 | Isolation transformer | 202-4862 |
| 75 | 93 | Isolation transformer | 202-48752 |
| 100 | 118 | Isolation transformer | 202-4813 |
| 125 | 145 | Isolation transformer | 202-481253 |
| 150 | 175 | Isolation transformer | 202-48153 |
| 200 | 220 | Isolation transformer | 202-4823 |
| 250 | 275 | Isolation transformer | 202-48253 |
| 300 | 330 | Isolation transformer | 202-4833 |
| 400 | 440 | Isolation transformer | 202-4843 |
| 500 | 550 | Isolation transformer | 202-4853 |
| 600 | 660 | Isolation transformer | 202-4863 |
| 700 | 750 | Isolation transformer | 202-4873 |
| 800 | 870 | Isolation transformer | 202-4883 |
| 900 | 1000 | Isolation transformer | 202-4893 |
| 1000 | 1100 | Isolation transformer | 202-4814 |

**460:460 Three-phase Isolation Transformers**

| Hp | kVA | Description | Catalog No. |
|---|---|---|---|
| 5 | 7.5 | Isolation transformer | 202-8851 |
| 7.5 | 11 | Isolation transformer | 202-88751 |
| 10 | 14 | Isolation transformer | 202-8812 |
| 15 | 20 | Isolation transformer | 202-88152 |
| 20 | 27 | Isolation transformer | 202-8822 |
| 25 | 34 | Isolation transformer | 202-88252 |
| 30 | 40 | Isolation transformer | 202-8832 |
| 40 | 51 | Isolation transformer | 202-8842 |
| 50 | 63 | Isolation transformer | 202-8852 |
| 60 | 75 | Isolation transformer | 202-8862 |
| 75 | 93 | Isolation transformer | 202-88752 |
| 100 | 118 | Isolation transformer | 202-8813 |
| 125 | 145 | Isolation transformer | 202-881253 |
| 150 | 175 | Isolation transformer | 202-88153 |
| 200 | 220 | Isolation transformer | 202-8823 |
| 250 | 275 | Isolation transformer | 202-88253 |
| 300 | 330 | Isolation transformer | 202-8833 |
| 400 | 440 | Isolation transformer | 202-8843 |
| 500 | 550 | Isolation transformer | 202-8853 |
| 600 | 660 | Isolation transformer | 202-8863 |
| 700 | 750 | Isolation transformer | 202-8873 |
| 800 | 870 | Isolation transformer | 202-8883 |
| 900 | 1000 | Isolation transformer | 202-8893 |
| 1000 | 1100 | Isolation transformer | 202-8814 |



Telephone: 704-588-3246 Fax: 704-588-3249

# Isolation Transformers

### Special Primary or Secondary Voltage

Select this option when you require special primary or secondary voltages for your applications.

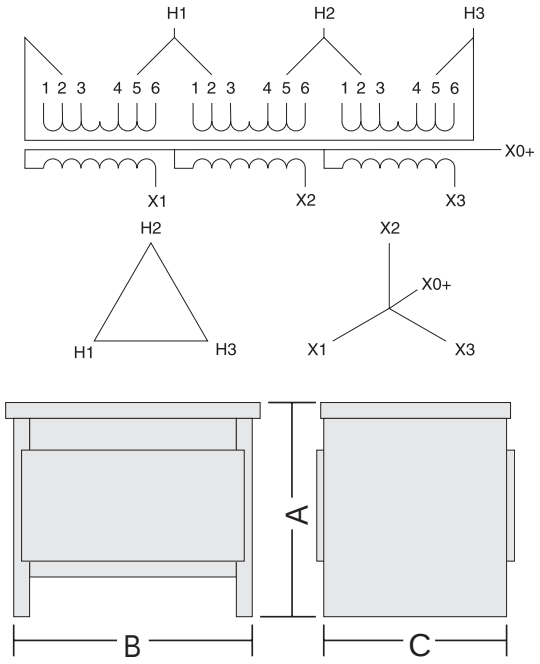
### Surface Mounted Thermal Switch

This option provides a normally-closed contact for sensing transformer coil over-temperature. One switch is mounted in each winding.

### Application Notes

Eurotherm Drives recommends grounding the neutral of the Y-side (secondary side of the transformer.) By grounding the neutral point, the phase voltage will remain equal from phase-to-phase and phase-to-ground. Having balanced voltage levels will further protect drive components.

Ensure that all loads (especially single-phase loads) on three-phase transformers are balanced. Each leg of the transformer can carry one third of the full transformer rating. Divide any single-phase loads equally among each leg.




## 575:230 Three-phase Isolation Transformers

| Hp | kVA | Description | Catalog No. |
|---|---|---|---|
| 5 | 7.5 | Isolation transformer | 202-9451 |
| 7.5 | 11 | Isolation transformer | 202-94751 |
| 10 | 14 | Isolation transformer | 202-9412 |
| 15 | 20 | Isolation transformer | 202-94152 |
| 20 | 27 | Isolation transformer | 202-9422 |
| 25 | 34 | Isolation transformer | 202-94252 |
| 30 | 40 | Isolation transformer | 202-9432 |
| 40 | 51 | Isolation transformer | 202-9442 |
| 50 | 63 | Isolation transformer | 202-9452 |
| 60 | 75 | Isolation transformer | 202-9462 |
| 75 | 93 | Isolation transformer | 202-94752 |
| 100 | 118 | Isolation transformer | 202-9413 |

## 575:460 Three-phase Isolation Transformers

| Hp | kVA | Description | Catalog No. |
|---|---|---|---|
| 5 | 7.5 | Isolation transformer | 202-8851 |
| 7.5 | 11 | Isolation transformer | 202-88751 |
| 10 | 14 | Isolation transformer | 202-8812 |
| 15 | 20 | Isolation transformer | 202-88152 |
| 20 | 27 | Isolation transformer | 202-8822 |
| 25 | 34 | Isolation transformer | 202-88252 |
| 30 | 40 | Isolation transformer | 202-8832 |
| 40 | 51 | Isolation transformer | 202-8842 |
| 50 | 63 | Isolation transformer | 202-8852 |
| 60 | 75 | Isolation transformer | 202-8862 |
| 75 | 93 | Isolation transformer | 202-88752 |
| 100 | 118 | Isolation transformer | 202-8813 |
| 125 | 145 | Isolation transformer | 202-881253 |
| 150 | 175 | Isolation transformer | 202-88153 |
| 200 | 220 | Isolation transformer | 202-8823 |
| 250 | 275 | Isolation transformer | 202-88253 |
| 300 | 330 | Isolation transformer | 202-8833 |
| 400 | 440 | Isolation transformer | 202-8843 |
| 500 | 550 | Isolation transformer | 202-8853 |
| 600 | 660 | Isolation transformer | 202-8863 |
| 700 | 750 | Isolation transformer | 202-8873 |
| 800 | 870 | Isolation transformer | 202-8883 |
| 900 | 1000 | Isolation transformer | 202-8893 |
| 1000 | 1100 | Isolation transformer | 202-8814 |

## Dimensions

| kVA | Weight (lbs.) | A | B | C |
|---|---|---|---|---|
| 7.5 | 145 (66) | 29 (737) | 17.13 (435) | 19.38 (492) |
| 11 | 165 (75) | 29 (737) | 17.13 (435) | 19.38 (492) |
| 15 | 185 (84) | 29 (737) | 17.13 (435) | 19.38 (492) |
| 20 | 285 (130) | 34 (864) | 22.38 (568) | 19.88 (505) |
| 27 | 315 (143) | 34 (864) | 22.38 (568) | 19.88 (505) |
| 34 | 320 (145) | 34 (864) | 22.38 (568) | 19.88 (505) |
| 40 | 345 (157) | 34 (864) | 22.38 (568) | 19.88 (505) |
| 51 | 400 (182) | 34 (864) | 22.38 (568) | 19.88 (505) |
| 63 | 480 (218) | 34.5 (876) | 27.88 (708) | 14.25 (362) |
| 75 | 495 (225) | 34.5 (876) | 27.88 (708) | 14.25 (362) |
| 93 | 600 (273) | 40.5 (1029) | 30.88 (784) | 15.50 (394) |
| 118 | 755 (343) | 46 (1168) | 34.38 (873) | 16.50 (419) |
| 145 | 810 (368) | 46 (1168) | 34.38 (873) | 16.50 (419) |
| 175 | 1030 (468) | 50 (1270) | 39.88 (1013) | 19.75 (502) |
| 220 | 1090 (495) | 50 (1270) | 39.88 (1013) | 19.75 (502) |
| 275 | 1450 (659) | 55.25 (1403) | 44.38 (1127) | 27.25 (692) |
| 330 | 1720 (782) | 60.5 (1537) | 50.38 (1280) | 34.25 (870) |
| 440 | 2085 (948) | 60.5 (1537) | 50.38 (1280) | 34.25 (870) |
| 550 | 2750 (1250) | 72 (1829) | 53.38 (1356) | 44.38 (1127) |
| 660 | 3100 (1409) | 72 (1829) | 53.38 (1356) | 44.38 (1127) |
| 750 | 3150 (1432) | 72 (1829) | 53.38 (1356) | 44.38 (1127) |

All dimensions are in inches (mm) and weights are in Lb.(Kg).

# Software

## ConfigEd Lite

ConfigEd Lite is a software tool used to configure stand alone Eurotherm controllers. Using the same graphical user interface as DSD, you create and diagram your configurations in an easy-to-understand format that shows the functionality of your drive.

This off-line tool does not need drive hardware to create your configuration. Once complete simply install it into your drive. In addition, you can retrieve configurations from existing drives to get all settings and modify existing configurations.

ConfigEd Lite requires a Windows™ based computer with at least 4 MB of RAM, 2 MB of hard drive space, 3.5 “floppy disk and one serial port for drive communication.

The package contains the complete ConfigEd Lite program with default configurations, product manual, and serial cable.

**ConfigEd Lite DC Application Pack**
The DC Applications Pack contains advanced configuration templates for control applications. The package includes configurations for current programmed winder, speed programmed winder, and section control.

## Drive System Designer

Drive System Designer (DSD) is a power software tool used to configure Eurotherm LINK drive systems. DSD employs a graphical user interface and drawing tools that allow you to create and diagram your configurations in an easy-to-understand format that represents the functionality of your configuration.

Use basic function blocks to create an unlimited control schemes or use powerful built-in blocks simplify your system design. When troubleshooting the system, the on-line SAM tool speeds diagnostics with access to the entire system on the same graphical configuration template.

DSD requires a Windows™ based computer with at least 4 MB of RAM, 2 MB of hard drive space, 3.5" floppy disk and one serial port for drive communication.

**Auto Configure Option**
Auto Configure, the most revolutionary design package on the market, makes system design reach a new level of simplicity. An addition to DSD, the graphical interface automatically configures the system based upon real-world user input like section type (Unwind, Nip, etc.).

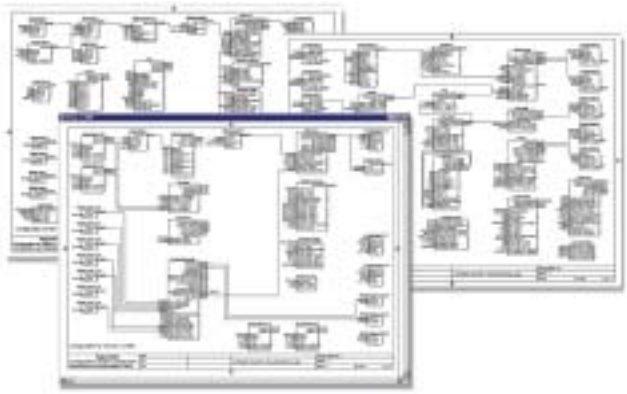
- CREATE, INSTALL, MODIFY & RETRIEVE CONFIGURATIONS
- GRAPHICAL INTERFACE
- POWERFUL FUNCTION BLOCKS
- DRAG AND DROP PROGRAMMING
- WINDOWS™ BASED PLATFORM

### Ordering Information

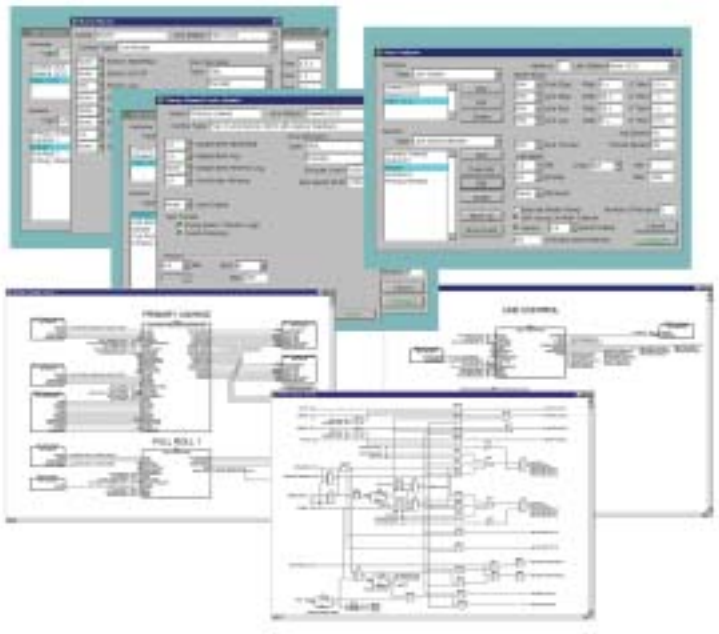
| Description | Catalog No. |
|---|---|
| ConfigEd Lite new user | 402-NU5 |
| ConfigEd Lite 590 DC application package | 402-DC5 |

### Options

| Description | Catalog No. |
|---|---|
| Serial cable, 25-pin to system port (3 feet) | CM351910 |
| Serial adapter, 25-pin to 9-pin | LA350838 |



- DESIGN OFF-LINE
- TROUBLESHOOT ON-LINE
- GRAPHICAL INTERFACE
- DRAG AND DROP PROGRAMMING
- WINDOWS™ BASED PLATFORM





Telephone: 704-588-3246 Fax: 704-588-3249

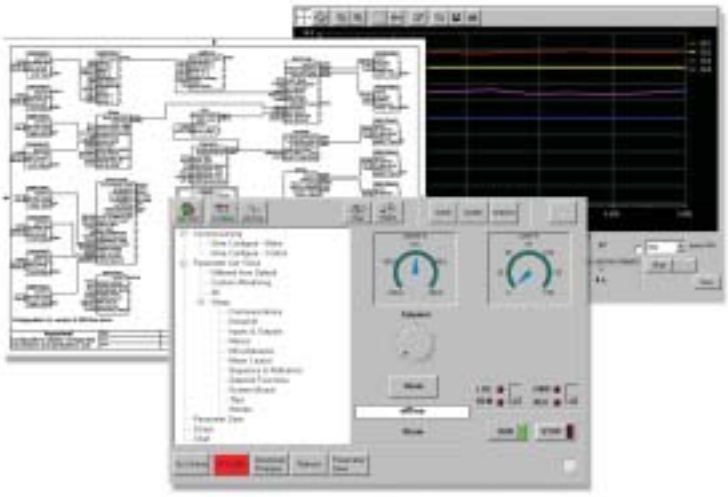
- REAL-TIME MONITORING AND TUNING
- CREATE, INSTALL, MODIFY & RETRIEVE CONFIGURATIONS
- GRAPHICAL INTERFACE
- SCOPE FUNCTION
- DRAG AND DROP PROGRAMMING
- WINDOWS™ BASED PLATFORM

## Ordering Information

| Description | Catalog No. |
|---|---|
| ConfigEd Lite Plus new user | CEL + NU1 |

## Options

| Description | Catalog No. |
|---|---|
| Serial cable, 25-pin to system port (3 feet) | CM351910 |
| Serial adapter, 25-pin to 9-pin | LA350838 |



NEW **Software**

# ConfigEd Lite Plus

ConfigEd Lite Plus is the next generation design and troubleshooting tool for standalone Eurotherm controllers. It includes the off-line configuration tool, ConfigEd Lite, PLUS an on-line tuning and troubleshooting package.

Compatible with our new 590+, 690+ and 650V models, users can start and stop the drive from their PC, set parameters, and monitor performance with the on-line scope. Startup is simplified further by built-in procedures that step the user through setup and tuning.

## GRAPHICAL INTERFACE

With the graphical user interface, you create and diagram your configurations in an easy-to-understand format that shows the functionality of your drive. Default templates display all the drive function blocks and internal signal connections. Users can easily create new custom templates and reuse old designs.

## OFF-LINE TOOL

This off-line tool does not need drive hardware to create your configuration. Once complete simply install it into your drive. In addition, you can retrieve configurations from existing drives to get all settings and modify existing configurations.

## SYSTEM REQUIREMENTS

ConfigEd Lite Plus requires a Windows® based computer with at least 32 MB of RAM, 12 MB of hard drive space, CD-ROM and one serial port for drive communication.

The package contains the complete ConfigEd Lite Plus program with default configurations, product manual, and serial cable.

# LINK – Fiber Optic Based Drive and Process Control System

LINK is an ultra high speed distributed drive control system. It enables all machine control elements including variable speed drives, operator controls and plant I/O to be networked together to provide integrated machine control of unrivalled flexibility.

Communication speeds of 2.7Mbaud allows LINK to operate a real time, event driven, deterministic network. Each control element of the machine or process is interconnected on a single, noise immune, fiber optic cable, which replaces the myriad of control wires traditionally associated with multi-drive systems. Typically savings of 50% in site cabling time and cost are possible with LINK compared to a standard wired system.

Each LINK system may comprise any combination of Eurotherm Drives sensorless and closed loop AC drives (690+, 605 and 620 series) or DC drives (590+ series). Digital and analog plant equipment can be interfaced onto the network via local or distributed I/O modules and a variety of gateway devices allow seamless integration with PC based control and monitoring packages.

The major component parts of a LINK control system are described below. There are however many other interface and peripheral components available that make LINK the world's most flexible control system, so please contact your nearest Eurotherm Drives sales outlet to discuss your application in detail.

**TOTAL CONFIGURABILITY FOR THE MOST ADVANCED MULTI-DRIVE SYSTEMS**

**NOISE IMMUNE FIBER OPTIC BASED HIGHWAY**

**REAL TIME PEER TO PEER COMMUNICATIONS**

**FIELDBUS COMPATIBILITY**

**MODEM REMOTE ACCESS CAPABILITY**

**AC AND DC NETWORKED DRIVES**

## L5300 LinkRack

This high speed intelligent controller forms the heart of a LINK system. There are 4 slots the accommodate any of the plug-in modules below in addition to the main processor and power supply (single phase 85-265Vac). The L5300 has been designed for DIN Rail or direct panel mounting.

## L5392 LinkStation

The L5392 is a touch-sensitive, color LCD operator station with provision (in the rear of the unit) for 4 option module slots. The multi-page operator screens are software configurable into 6 bands each grouping any combination of the following.

- **Operator pushbuttons, each independently configurable**
- **Potentiometers, displaying and setting setpoint and feedback variables**
- **Indicators, displaying variables only**
- **Machine status and alarm indicators**

## L5331 Digital I/O LinkCard

16 x 24V channel digital input/output module. Each channel can be independently configured as an input or output. All terminals are plug-in and easily accessed on the front of the module and have LED indication of the "ON" state. A high speed counter for encoder or other pulse inputs is available.

## L5341 Analog I/O LinkCard

8 x Input and 2 x Output analog module. Each channel is bipolar with 14 bit (13 bit + sign) resolution. +10V and -10V power supply outputs are provided for use with external devices including potentiometers and transducers. All terminals are disconnectable plug-in types.

## L5311 RTN Fiber Optic LinkCard

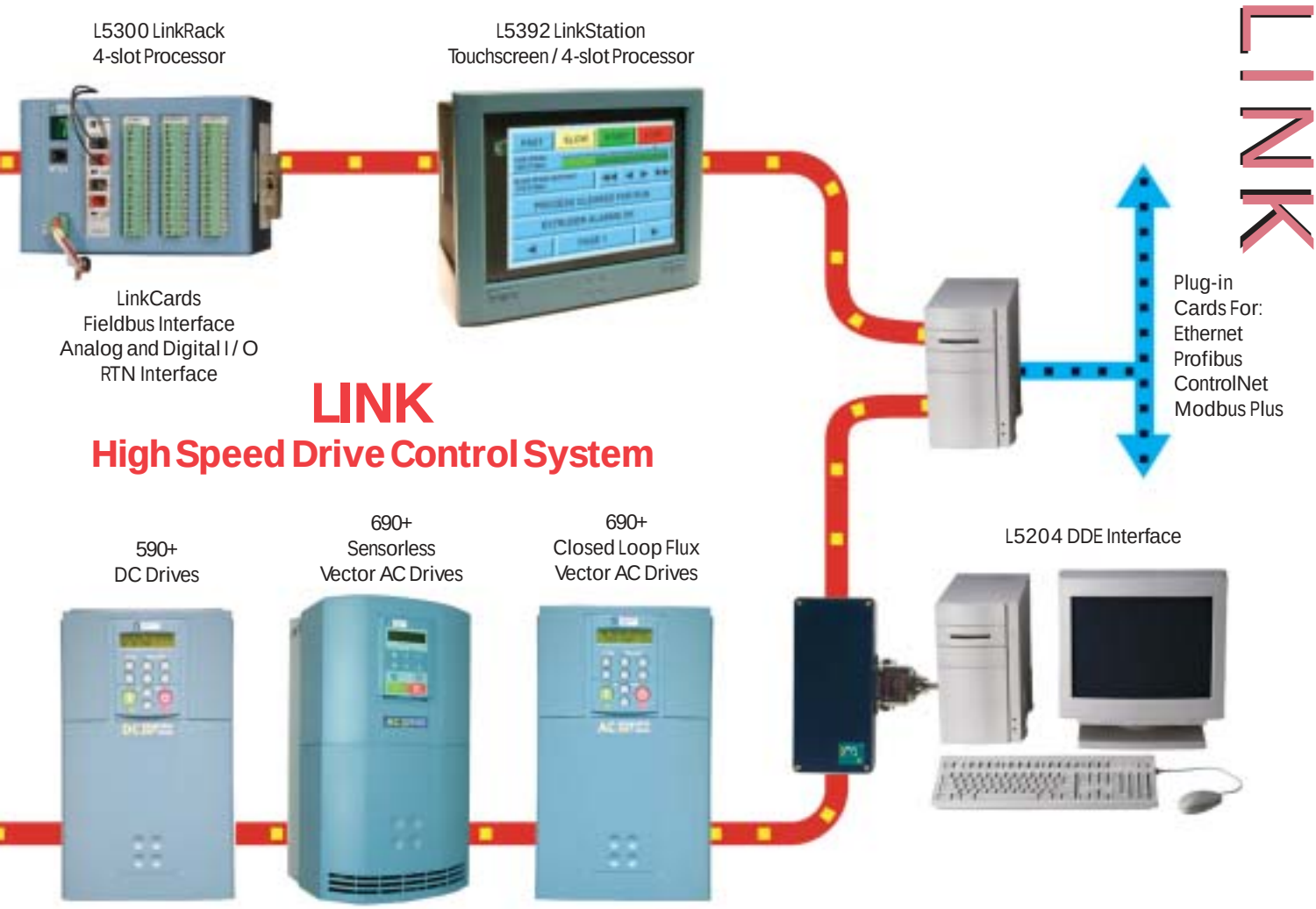
Provides input and output connections for the acrylic fiber optic link.

L5202 Remote Digital I/O Module

L5201 Remote Analog I/O Module



Telephone: 704-588-3246 Fax: 704-588-3249




## L5351 Devicenet LinkCard

Enables LINK to be interfaced into a Devicenet based system.

## L5353 Profibus LinkCard

Enables LINK to be interfaced into a Profibus based system.

## L5321 Serial Link / Modbus LinkCard

Enables LINK to be interfaced to Modbus or other serial protocol systems.

## L5201 Remote Analog I / O Unit

Remote module providing 5 x analog inputs and 1 x analog output plus fiber optic interface. Particularly useful for distributed control around the machine or process.

## L5202 Remote Digital I / O Unit

Remote module providing 12 x independently configurable 24V digital inputs or outputs plus fiber optic interface. Particularly useful for distributed control around the machine or process.

## L5204 DDE Interface

DDE Interface module that opens the LINK network to any Windows based application including SCADA packages.

## L5510 Universal Gateway

Universal gateway to additional Bus standards including Data Highway, Ethernet and VME.

## DRIVE SYSTEM DESIGNER - Revolutionary System Design Software

Drive System Designer ("DSD") is like no other drive software. With the Auto Configure option, it actually designs the drive control system for you! You simply enter basic data on your process (line speed, web tension etc) and identify the function of each drive (unwind, nip roll etc) and DSD does the rest by selecting and configuring all the LINK hardware and software. Full details on this unique software package are on page 34.

# 631

## 1 to 6A

The 631 is much more than a basic Brushless Servo drive. With torque, speed, position or motion control, built-in I/O, EMC compliant filter and PLC functionality, it's a complete positioning system in a single module. The 631 can be connected directly to a 230 VAC single-phase supply without needing an isolation transformer.

**Motion Controller**

1500 Program steps

Real-time and multi-tasking structure: PLC, Math and Motion programs

Electronic gearing and CAM functions

CANopen comm ports: DS301 implemented

### INPUTS/OUTPUTS

**Analog Inputs** - 1 ; (10 VDC)

**Digital Inputs** - 4; ENABLE and 3 User configurable (24 VDC)

**Digital Outputs** - 2; User configurable (24 VDC Sourcing)

**Resolver Feedback** - 12- or 14-bit, User selectable

**Incremental I/O User Configurable**

Encoder Input, step/dir, step/step or Simulated Encoder Output

**CANBUS ANCILLARY EQUIPMENT**

8 Channel I/O Expansion module (LA469119)

8 - Configurable digital inputs/outputs (max. 4 outputs)

DIRECT 230 VAC SUPPLY CONNECTION

INTEGRAL EMC COMPLIANT FILTERS

35MM DIN OR DIRECT PANEL MOUNT

# 635 / 637+

## 2 to 30A

Torque, speed, position or motion control and built-in I/O are all standard features of the 635/637+ series Brushless Servo drive. Each model has an internal power supply allowing direct connection to the supply. 635 models are 230 VAC rated and 637+ models are rated for either 230 or 460 VAC supplies. They become part of a total servo package including motors, servo gearboxes and interconnecting cables.

The 635/637+ is available as a stand-alone drive or as a rack mounted module with up to 9 drives in a single rack.

**Motion Controller**

1500 Program steps

Real-time and multi-tasking structure: PLC, Math and Motion programs

Electronic gearing and CAM functions

Several Fieldbus options available

### INPUTS/OUTPUTS

**Analog Inputs (635)** - 2; one 10-bit, one 12-bit (10 VDC)

**Analog Inputs (637+)** - 2; one 10-bit, one 14-bit (10 VDC)

**Analog Outputs (635)** - 2 ; 7-bit (10 VDC)

**Analog Outputs (637+)** - 2; one 8-bit, one 10-bit (10 VDC)

**Digital Inputs** - 8; ENABLE and 7 user configurable (24 VDC), (inc. 2 interrupts)

**Digital Outputs** - 5; OK and 4 user configurable (24 VDC Sourcing)

**Resolver Feedback** - 12- or 14-bit, User selectable (635) or 16-bit (637+)

**Incremental I/O User Configurable**

Encoder Input, step/dir, step/step or Simulated Encoder Output

DIRECT 230 OR 460 VAC SUPPLY CONNECTION

637+ RACK OPTION SUPPORTS 9 DRIVES



Telephone : **704-588-3246** Fax:

# 631/635/637
## 1 to 30A

- 7-SEGMENT DIAGNOSTIC DISPLAY
- MOTOR PROTECTION, $I^2T$ AND PTC/NTC
- SIMPLE COMMISSIONING AND PROGRAMMING VIA EASYRIDER© SOFTWARE
- COMPLETE PACKAGE OF MOTORS, SERVO GEARBOXES AND INTERCONNECTING CABLES

### TECHNICAL SPECIFICATION

**Power Supply** - Single- or three-phase 220-240 VAC (±10%); 50 - 60 Hz ±5%

**Three-phase** 380-460 VAC (±10%); 50 - 60 Hz ±5%

**Ambient** - 0-40°C (32-104°F); derate 2% per °C to 50°C (122°F) maximum

**Altitude** - 1000m (3280 ft) ASL, derate 1% per 100m (330 ft) up to 4000m (13123 ft) maximum

c UL us LISTED

CE

DVE

### 220-240V

| Type | Amps Cont. (rms) | Amps Peak* (rms) | Cont. Output (kW) | Mech. Typ. (kW) | H (inch) | W (inch) | D** (inch) | Weight |
|---|---|---|---|---|---|---|---|---|
| 631 SERIES Single-phase | | | | | | | | |
| 631/001/230/F/00 | 1 | 2 | 0.4 | 0.19 | 7.2 | 2.8 | 6.8 | 3.3 lb. (1.5 kg) |
| 631/002/230/F/00 | 2 | 4 | 0.8 | 0.38 | | | | |
| 631/004/230/F/00 | 4 | 8 | 1.5 | 0.76 | | | | |
| 631/006/230/F/00 | 6 | 12 | 2.3 | 1.14 | | | | |
| 635 SERIES Single/Three-phase | | | | | | | | |
| 635/KDER03-0 | 2.5 | 5 | 0.9 | 0.47 | 9.8 | 3.5 | 8.5 | 6 |
| 635/KDER05-0 | 5.0 | 10 | 1.9 | 0.95 | | 3.5 | | 6 |
| 635/KDER07-0 | 6.5 | 13 | 2.5 | 1.23 | | 4.1 | | 6.4 |
| 635/KDER10-0*** | 10.0 | 20 | 3.8 | 1.90 | | 4.1 | | 7.6 |
| 637+ SERIES Single/Three-phase | | | | | | | | |
| 637+/KD6R02-3 | 2 | 4 | 0.8 | 0.4 | 15.7 | 2.4 | 11 | 11 |
| 637+/KD6R04-3 | 4 | 8 | 1.5 | 0.8 | | | | |
| 637+/KD6R06-3 | 6 | 12 | 2.3 | 1.1 | | | | |
| 637+/KD6R10-3*** | 10 | 20 | 3.8 | 1.9 | | 4 | | 19.4 |
| 637+/KD6R16-3*** | 16 | 32 | 6.1 | 3.0 | | | | |
| 637+/KD6R22-3*** | 22 | 44 | 8.4 | 4.2 | | | | |
| 637+/KD6R30-3*** | 30 | 60 | 11.4 | 5.7 | | | | |

Mounting holes 0.2" - use M5 screws
* Peak amps for 5 seconds
** 2.75" must be allowed for connectors/cables
*** Three phase only

### 380-460V (±10%) THREE-PHASE

| Type | Amps Cont. (rms) | Amps Peak* (rms) | Cont. Output (kW) | Mech. Typ. (kW) | H (inch) | W (inch) | D** (inch) | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|
| 637+/KD6R02-7 | 2 | 4 | 1.6 | 0.8 | 15.7 | 2.4 | 11 | 11 |
| 637+/KD6R04-7 | 4 | 8 | 3.2 | 1.6 | | | | |
| 637+/KD6R06-7 | 6 | 12 | 4.7 | 2.4 | | | | |
| 637+/KD6R10-7 | 10 | 20 | 7.9 | 4.0 | | 4 | | 19.4 |
| 637+/KD6R16-7 | 16 | 32 | 12.6 | 6.3 | | | | |
| 637+/KD6R22-7 | 22 | 44 | 17.4 | 8.7 | | | | |
| 637+/KD6R30-7 | 30 | 60 | 23.7 | 11.8 | | | | |

* Peak amps for 5 seconds
** 2.75" must be allowed for connectors/cables.

### 635/637+ FACTORY INSTALLED OPTIONS

| | |
|---|---|
| Profibus-DP | Add suffix - PDP |
| CANbus | Add suffix - CAN |
| DeviceNet | Add suffix - DEV |
| SUCOnet K | Add suffix - SUC |
| RS232 | Add suffix - 232 |
| RS485 | Add suffix - 485 |
| RS422 | Add suffix - 422 |
| Interbus S | Add suffix - IBS |
| I/O Expansion Boards (only one per drive) | |
| 635/Expansion board 5 Inputs / 2 Outputs | Add suffix - EA5 |
| 637+ Expansion board 14 Inputs / 10 Output | Add suffix - EAE |

Example: 637+/KD6R16-3-PDP

# 631/635/637
## Accessories

Complete cable assemblies between Parvex motors and 630 series drives.

| COMPLETE CABLE ASSEMBLIES | |
|---|---|
| Description | Part Number |
| Cable POWER, xxM with motor connector, 4 amp max. | 220139R49xx |
| Cable POWER, xxM with motor connector, 8 amp max. | 220139R42xx |
| Cable POWER, xxM with motor connector, 16 amp max. | 220139R43xx |
| Cable POWER, xxM with motor connector, 32 amp max. | 220139R48xx |
| Cable RESOLVER, xxM with motor connector | 220049R51xx |
| Cable RESOLVER, xxM with motor and X30 connectors | 220139R61xx |

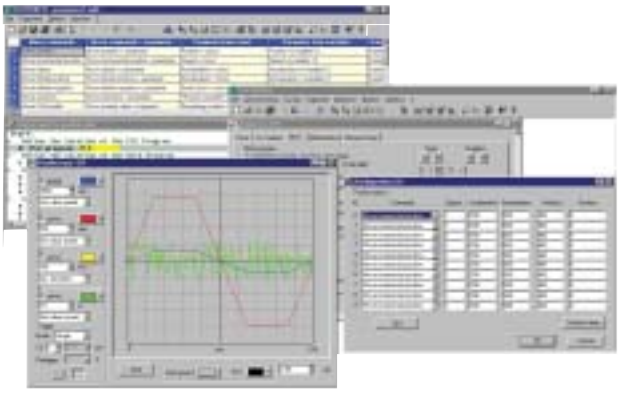
Note: Motor Power cables include brake and thermal conductors
xx = Cable length in meters; Standard lengths 2, 5, 10m. (6.5, 16.4, 32.8 ft)
Example: 220139R6150=50 meter (164 ft) long RESOLVER cable with motor & X30 connectors

| LOOSE CABLES (NO CONNECTORS) | |
|---|---|
| Description | Part Number |
| Power Cable, 0,5mm² (20 AWG) (4 amp max.) | 6537P0019 |
| Power Cable, 1,0mm² (18 AWG) (8 amp max.) | 6537P0009 |
| Power Cable, 2,5mm² (14 AWG) (32 amp max.) | 6537P0010 |
| Resolver Cable, 3P, 0.34mm² | 6537P0001 |
| CAN Cable, 2P, 0.14mm² | KA.0003.8003 |
| Signal Cable, 4P, 0.14mm² | KA.0003.8015 |

| LOOSE CONNECTORS | |
|---|---|
| Description | Part Number |
| Motor POWER CONNECTOR size 1 (8 amp max.) | 220065R1610 |
| Motor POWER CONNECTOR size 1 (16 amp max.) | 220065R1611 |
| Motor POWER CONNECTOR size 3 (32 amp max.) | 220065R3611 |
| Motor RESOLVER CONNECTOR for Parvex motor | 220065R4621 |
| Drive Connectors for 635/637+ | |
| X10 I/O | ST.1002.2003 |
| X30/COM2 | ST.1002.2001 |
| X40 | ST.1001.2002 |
| X200 | ST.1010.2001 |
| COM1 for 635/637 only | ST.9701.0001 |
| COM2 for Profibus | ST.0930.1701 |
| Package X10,X30,X40 and COM 2 | LA467063 |

### EASYRIDER© SOFTWARE

Easyrider software is a Windows based graphical programming utility for configuring the 63x series of Servo controllers. It provides a simple user interface for accessing all drive parameters, programming motion and calibrating the drive.



| CANbus ANCILLARY EQUIPMENT | |
|---|---|
| Description | Part Number |
| 8 Channel I/O CANbus Expansion Module | E/A-CAN |
| BCD Switch Module - 5 Digit plus sign with 6 digit LED readout | BCD-LED6-CAN-VZ000 |
| CANbus terminator plug, 631 only X20/X21 | CM469030 |
| 631 X20 (or X40) to 631 X20 (or X40) 100mm cable, 4C with connectors both ends | CM469036U001 |
| 631 X20 1m cable, 4C with connector one end | CM469029U010 |
| 631 X40 1m cable, 8C with connector one end | CM469033U010 |

| CANbus HMI (HUMAN MACHINE INTERFACE) | |
|---|---|
| Description | Part Number |
| 4 x 20 Character IBT HMI | BE.1000.1805 |
| IBT to 635/637+ (COM2), 2M Cable with Connectors | KK.5100.1301 |
| Programming Cable, IBT to PC, 2M | KK.5100.1401 |
| HMI Programming Software (Windows) | SO.9000.0005 |

| SOFTWARE & PROGRAMMING CABLES | |
|---|---|
| Description | Part Number |
| Programming Cable, PC-DRIVE 631/637+ | CM351909 |
| Programming Cable, PC-DRIVE 635/637 | KK.5004.0001 |
| EASYRIDER Software on CD-ROM includes hardware and software manuals. | EASYRIDER |

For optional components; EMC/RFI filters, regenerative components, etc., please contact your local sales channel.


Telephone : Fax :

# Servo Motors
# Brushless Servo Motors



This servo range offers an extremely wide choice of Brushless, Water-cooled Brushless Synchronous and DC Brush motors and compatible drives. In addition to standard products with torque ratings from 0.3 to 320 Nm, custom solutions allow us to meet standard and specialized servo applications across all industries.

## OPTIONS

- Gearheads
- Power-off brakes
- Protection IP65
- Custom shafting and configurations
- Mating connectors and cable assemblies

## LX/NX BRUSHLESS SERVO MOTORS - for use with 220-240 VAC Drives

| Motor Type | Static Torque | Static Torque | Cont. Current | Max. Speed | Interia | Interia |
|---|---|---|---|---|---|---|
| | Nm | lb-in | A rms | RPM | $kgm^2 \times 10^{-5}$ | $lb\text{-}in\text{-}s^2 \times 10^{-4}$ |
| NX110EEP | 0.38 | 3.4 | 0.9 | 6000 | 1.2 | 1.1 |
| NX210EET | 1 | 8.9 | 0.9 | 4000 | 3.9 | 3.4 |
| NX210EEP | 1 | 8.9 | 2.0 | 6000 | 3.9 | 3.4 |
| NX310EAP | 2 | 17.7 | 1.4 | 2300 | 7.9 | 7.0 |
| NX310EAK | 2 | 17,7 | 2.5 | 4000 | 7.9 | 7.0 |
| NX420EAP | 4 | 35.4 | 2.8 | 2300 | 29 | 26 |
| NX420EAJ | 4 | 35.4 | 4.9 | 4000 | 29 | 26 |
| NX430EAJ | 5.5 | 48.7 | 5.2 | 3200 | 43 | 38 |
| NX430EAF | 5.5 | 48.7 | 6.6 | 4000 | 43 | 38 |
| NX620EAR | 8 | 70.8 | 5.3 | 2200 | 98 | 87 |
| NX620EAJ | 8 | 70.8 | 9.8 | 4000 | 98 | 87 |
| NX630EAK | 12 | 106.2 | 10.6 | 2800 | 147 | 130 |
| NX630EAG | 12 | 106.2 | 14.9 | 4000 | 147 | 130 |
| LX820DH | 19 | 168.2 | 19.5 | 2800 | 230 | 204 |
| LX820DF | 19 | 168.2 | 26.0 | 3800 | 230 | 204 |
| LX840DG | 38 | 336.3 | 20.9 | 1600 | 420 | 372 |
| LX840DE | 38 | 336.3 | 29.3 | 2200 | 420 | 372 |
| *LX820VK | 28 | 247.8 | 21.1 | 2000 | 230 | 204 |
| *LX820VF | 28 | 247.8 | 38.6 | 3800 | 230 | 204 |
| *LX840VE | 54 | 477.9 | 42.2 | 2200 | 420 | 372 |

* = Force air cooled motor

## HX/NX BRUSHLESS SERVO MOTORS - for use with up to 480 VAC Drives

| Motor Type | Static Torque | Static Torque | Cont. Current | Max. Speed | Inertia | Interia |
|---|---|---|---|---|---|---|
| | Nm | lb-in | A rms | RPM | $kgm^2 \times 10^{-5}$ | $lb\text{-}in\text{-}s^2 \times 10^{-4}$ |
| NX310EAP | 2 | 17.7 | 1.4 | 4600 | 7.90 | 6.99 |
| NX420EAV | 4 | 35.4 | 1.4 | 2300 | 29.0 | 25.7 |
| NX420EAP | 4 | 35.4 | 2.8 | 4600 | 29.0 | 25.7 |
| NX430EAP | 5.5 | 48.7 | 2.8 | 3450 | 42.6 | 37.7 |
| NX430EAL | 5.5 | 48.7 | 3.8 | 4600 | 42.6 | 37.7 |
| NX620EAV | 8 | 70.8 | 2.8 | 2300 | 98.0 | 86.7 |
| NX620EAR | 8 | 70.8 | 5.3 | 4490 | 98.0 | 86.7 |
| NX630EAR | 12 | 106.2 | 5.6 | 3110 | 147 | 130 |
| NX630EAN | 12 | 106.2 | 8.5 | 4600 | 147 | 130 |
| HX820DT | 19 | 168.2 | 5.6 | 1730 | 230 | 204 |
| HX820DN | 19 | 168.2 | 11.2 | 3570 | 230 | 204 |
| HX820DJ | 19 | 168.2 | 15.6 | 4200 | 230 | 204 |
| HX840DN | 38 | 336.3 | 10.5 | 1730 | 420 | 372 |
| HX840DH | 38 | 336.3 | 18.3 | 2600 | 420 | 372 |
| *HX820VK | 28 | 247.8 | 21.1 | 4600 | 230 | 204 |
| *HX820VH | 28 | 247.8 | 29.0 | 5000 | 230 | 204 |
| *HX840VJ | 55 | 486.8 | 21.6 | 2420 | 420 | 372 |
| *HX840VG | 55 | 486.8 | 30.8 | 3570 | 420 | 372 |
| *HX840VG | 55 | 486.8 | 30.8 | 3570 | 420 | 372 |
| *HXA30VI | 170 | 1504.5 | 69.9 | 2300 | 2700 | 2390 |
| *HXA40VI | 228 | 2017.8 | 70.4 | 1610 | 3500 | 3098 |
| *HXA40VG | 230 | 2035.5 | 91.9 | 2180 | 3500 | 3098 |
| *HXA40VE | 230 | 2035.5 | 128.7 | 3100 | 3500 | 3098 |
| *HXA50VF | 280 | 2478.0 | 103.2 | 2070 | 4300 | 3806 |
| *HXA50VE | 280 | 2478.0 | 123.7 | 2450 | 4300 | 3806 |
| *HXA60VF | 320 | 2832.0 | 96.2 | 1660 | 5100 | 4514 |
| *HXA60VD | 315 | 2787.8 | 140.7 | 2550 | 5100 | 4514 |

* = Force air cooled motor

- 230 AND 460 VAC MODELS
- ADJUSTABLE INTERCONNECTRON™ CONNECTORS
- COMPACT SIZE WITH LOW ROTOR INERTIA
- HIGH TORQUE AT ZERO SPEED
- HIGH TORQUE TO INERTIA RATIO
- 4, 8 AND 10 POLE ZERO-COG DESIGNS
- RESOLVER FEEDBACK STANDARD
- IP64 PROTECTION STANDARD

# Digivex Series

## 50 to 300A

Digivex is a family of high performance digital Brushless Servo drives available in continuous ratings from 2 to 300A. They are suitable for either speed control (DPD) or position/motion control (DPM).

**DIGIVEX DPD/DPM SERIES SERVO DRIVES**

| Type | Amps Cont. | Amps Peak* | Cont. Output (kW) | Mech. Typ. (kW) | H (inch) | W (inch) | D*** (inch) | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|
| DIGIVEX | | | | | | | | |
| DPD17050 | 50 | 80 | 39.4 | 19.72 | 17.5 | 19 | 13.5 | 77 |
| DPD17100 | 100 | 120 | 78.9 | 39.44 | | | | 97 |
| DPD17150 | 150 | 150 | 118.3 | 59.16 | | | | 110 |
| DPD17200*** | 200 | 200 | 157.7 | 78.87 | 34.6 | 21.3 | | 176 |
| DPD17300*** | 300 | 300 | 236.6 | 118.31 | 34.6 | 21.3 | | 220 |
| DIGIVEX MOTION | | | | | | | | |
| DPM17050 | 50 | 80 | 39.4 | 19.72 | 17.5 | 19 | 13.5 | 77 |
| DPM17100 | 100 | 120 | 78.9 | 39.44 | | | | 97 |
| DPM17150 | 150 | 150 | 118.3 | 59.16 | | | | 110 |
| DPM17200*** | 200 | 200 | 157.7 | 78.87 | 34.6 | 21.3 | | 176 |
| DPM17300*** | 300 | 300 | 236.6 | 118.31 | 34.6 | 21.3 | | 220 |

* Peak amps for 5 seconds
** 2.75" must be allowed for connectors/cables.
*** Forced air Ventilation required.

CE

- Single axis drive with integrated 480 VAC power supply
- Regenerative braking circuits or regenerate into AC supply
- Real-time and multi-tasking structure: 1 motion and 2 PLC programs
- 26 I/O interface
- CANbus interface
- Encoder outputs to 16,384 lines
- Digivex Motion Explorer software
- Two processors for 250 µsec cycle times
- Ready for cut-to-length, master/slave, positioning, synchronization, cam profiling
- Digivex DPD/DPM Series Servo Drives




Telephone :  Fax :

- Permanent magnet, cold rotor
- Compact size with low rotor inertia
- Stable balancing
- Speed range to 50000 RPM
- Reduced maintenance
- High torque at zero speed
- Positioning capability

# Servo Motors Synchronous Water Cooled Spindle Motors

The HW servomotors are water-cooled Brushless Synchronous motors delivered as individual components (rotor, stator and resolver) to make a complete spindle unit. These motors are driven by Digivex DPD or DPM series servo drives.



**HW SPINDLE MOTORS** - for use with 480 VAC Digivex Series Drives

| Motor Type | Digivex Drive | Torque (S1/S3) | Torque (S1-S3) | Power (S1/S3) | Power (S1/S3) | Base Speed | Max Speed | Diameter |
|---|---|---|---|---|---|---|---|---|
| | | Nm | lb-in | kW | HP | RPM | RPM | Inch |
| HW420BU | 8/16 | 4.2 | 37.1 | 2.7 | 3.6 | 6130 | 50000 | 3.9 |
| HW420BP | 16/62 | 4.2 | 37.1 | 5.7 | 7.6 | 13000 | 50000 | 3.9 |
| HW420BK | 32/64 | 4.2 | 37.1 | 11.7 | 15.6 | 26600 | 50000 | 3.9 |
| HW430BQ | 16/32 | 6.7 | 59.3 | 5.5 | 7.3 | 7840 | 50000 | 3.9 |
| HW430BL | 32/64 | 6.7 | 59.3 | 11.5 | 15.4 | 16400 | 50000 | 3.9 |
| HW430BI | 50/80 | 6.7 | 59.3 | 18 | 24 | 25700 | 50000 | 3.9 |
| HW620CN | 16/32 | 8.3/10 | 73.5/88.5 | 4.8/5.8 | 6.4/7.7 | 5540 | 30000 | 5.1 |
| HW620CI | 32/64 | 8.3/10 | 73.5/88.5 | 10/12 | 13/16 | 11500 | 30000 | 5.1 |
| HW635CI | 32/64 | 15/18 | 132/159 | 10/12 | 13/16 | 6310 | 30000 | 5.1 |
| HW635CF | 50/80 | 15/18 | 132/159 | 15/18 | 20/24 | 9550 | 30000 | 5.1 |
| HW820RR | 32/64 | 21.5/26 | 190/230 | 8.3/10 | 11/13 | 3670 | 24000 | 7.1 |
| HW820RP | 50/80 | 21.5/26 | 190/230 | 13/16 | 17/21 | 5870 | 24000 | 7.1 |
| HW820CR | 32/64 | 25.8/31 | 228/274 | 10/12 | 13/16 | 3690 | 18000 | 7.1 |
| HW820CP | 50/80 | 25.8/31 | 228/274 | 15.6/19 | 20/25 | 5760 | 18000 | 7.1 |
| HW840CR | 32/64 | 57.3/66 | 507/584 | 10/11.5 | 13/15 | 1660 | 18000 | 7.1 |
| HW840CP | 50/80 | 57.3/66 | 507/584 | 15.7/18 | 21/24 | 2610 | 24000 | 7.1 |
| HW840CH | 100/120 | 57.3/66 | 507/584 | 33/38 | 44/50 | 5450 | 24000 | 7.1 |
| HW840CF | 150 | 57.3/70 | 507/619 | 42/51 | 56/68 | 7020 | 20000 | 7.1 |
| HW930CJ | 100/120 | 112 | 991 | 35 | 46 | 3020 | 20000 | 8.7 |
| HW930CI | 100/120 | 102 | 902 | 40 | 53 | 3700 | 20000 | 8.7 |
| HW930CF | 150 | 102 | 902 | 60 | 80 | 5620 | 20000 | 8.7 |
| HW930CE | 200 | 112 | 991 | 72 | 96 | 6180 | 20000 | 8.7 |
| HW930CC | 300 | 102 | 902 | 120 | 160 | 11200 | 20000 | 8.7 |
| HW950CJ | 100/120 | 186 | 1646 | 35 | 46 | 1800 | 20000 | 8.7 |
| HW950CI | 100/120 | 170 | 1504 | 39 | 52 | 2190 | 20000 | 8.7 |
| HW950CF | 150 | 170 | 1504 | 60 | 80 | 3370 | 20000 | 8.7 |
| HW950CE | 200 | 186 | 1646 | 73 | 97 | 3770 | 20000 | 8.7 |
| HW950CC | 300 | 170 | 1504 | 120 | 160 | 6850 | 20000 | 8.7 |
| HWA30DN | 50/80 | 260 | 2301 | 17 | 22 | 630 | 12000 | 10.6 |
| HWA30DF | 100/120 | 260 | 2301 | 37 | 49 | 1370 | 12000 | 10.6 |
| HWA30DD | 150 | 260 | 2301 | 58 | 77 | 2120 | 12000 | 10.6 |
| HWA30DC | 200 | 260 | 2301 | 78 | 104 | 2860 | 12000 | 10.6 |
| HWA30DB | 300 | 260 | 2301 | 117 | 156 | 4300 | 12000 | 10.6 |
| HWA50DG | 100/120 | 430/510 | 3805/4513 | 27/31 | 36/41 | 580 | 12000 | 10.6 |
| HWA50DF | 100/120 | 430 | 3805 | 36 | 48 | 800 | 12000 | 10.6 |
| HWA50DD | 150 | 430 | 3805 | 56 | 75 | 1250 | 12000 | 10.6 |
| HWA50DC | 200 | 430 | 3805 | 77 | 103 | 1720 | 12000 | 10.6 |
| HWA50DB | 300 | 430 | 3805 | 118 | 158 | 2610 | 12000 | 10.6 |
| HWB20HH | 150 | 575 | 5089 | 54 | 72 | 890 | 8000 | 13.3 |
| HWB30HJ | 150 | 940/1070 | 8319/9470 | 42/42 | 56/56 | 425 | 7000 | 13.3 |
| HWB40HE | 300 | 1250/1400 | 11063/12391 | 78/87 | 104/116 | 595 | 8000 | 13.3 |

CE

## Other Servo Motor Designs

- AXEM - Disk rotor servomotors from 0.14 to 22.9 Nm
- RX - The economical DC brush solution from 0.3 to 8 Nm
- RS - The high performance DC brush range from 0.05 to 13 Nm
- AXL - The compact motor/reducer combination
- XD - For use in hazardous environments
- Customized motors with special cables, connectors, feedback, windings, flanges, etc.

# Reference Information

## Abbreviations

Electrical Data

| | |
|---|---|
| Kilowatts | =kW |
| Volts | =V |
| Armature Volts | =Va |
| Field Volts | =Vf |
| Amperes | =A |
| Armature Current | =Ia |
| Field Current | =If |
| Power Factor | =PF |

# Servo

## Useful Servo Drive Calculations

Correctly rating a servo motor and drive application often involves mechanical calculations. Below are typical examples of some of the commonly occurring formulae that are often encountered. These are provided for general guidance only and any results may need to be modified to take into account specific application details such as mechanical losses, inclined angles and duty cycles etc. Your local Eurotherm Drives sales office will always be pleased to assist in correctly sizing your application.

Time to accelerate a rotating mass

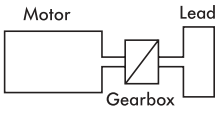
M(acc) = Acceleration Torque, Nm
J(tot) = Total Inertia, kgm$^2$
J(mot) = Motor Inertia, kgm$^2$
J(load) = Load Inertia, kgm$^2$
R = Gearbox Ratio (Speed Reducing)
t(acc) = Acceleration time, sec
$\alpha$ = Angular Acceleration, rad.sec$^{-2}$
$\varpi$ = Angular Speed, rad.sec$^{-1}$
n = Angular Speed, rpm

M(acc) = J(tot) x $\alpha$ or $\alpha$ = M(acc)/ J(tot)

$\alpha$ = $\varpi$/t(acc) or t(acc) = $\varpi/\alpha$

$\varpi$ = (n/60) x 2$\pi$

J(tot) = J(mot) + (J(load)/R$^2$)




### Example

J(load) = 0.50kgm$^2$
J(mot) = 5.0kgcm$^2$ (=0.00050kgm$^2$)
R = 30:1
n = 1500rpm
M(acc) = 15Nm

J(tot) = 0.00050 + (0.5 / 30$^2$)
J(tot) = 0.00106 kgm$^2$

$\alpha$ = 15/0.00106
$\alpha$ = 14,150 rad.sec$^{-2}$

$\varpi$ = (1500/60) x 2$\pi$
$\varpi$ = 157 rad.sec$^{-2}$

t(acc) = 157/14,150
t(acc) = 0.0111 sec (11.1mS)

### Useful Conversion Factors

| | | |
|---|---|---|
| 1HP | = | 746W |
| 1Nm | = | 8.851lb.in |
| 1mm | = | 0.3937inch |
| 1m$^2$ | = | 35.31ft$^2$ |
| 1kg.m$^2$ | = | 1Nms$^2$ = 0.73756 lb.ft.S$^2$ |

### Useful formula

1 Watt = 1Nm/s

Torque (lb ft) = $\frac{5250 \times HP}{speed\ (rpm)}$

Torque (Nm) = $\frac{9549 \times kW}{speed\ (rpm)}$

3 phase ac power (kW) = $\frac{1.732 \times V \times I \times PF}{1000}$

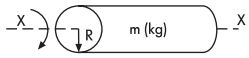
1 phase ac power (kW) = $\frac{V \times I \times PF}{1000}$

### Useful Inertia Formula

Servo drives are often employed in highly dynamic applications where rapid and accurate positioning is required. To to obtain the ultimate performance in any system, the reflected load inertia (taking into account any gearbox or pulley ratios) should equal the motor inertia. This is often not possible, but ratio mismatches of typically 5:1 are not normally significant. The greater the mismatch between reflected load inertia and motor inertia, the lower will be the dynamic performance of the system.

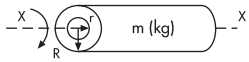
### Solid Cylinder Rotating About Axis XX

J = (mR$^2$)/2



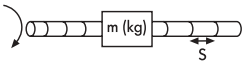

### Hollow Cylinder Rotating About Axis XX

J = m(R$^2$ + r$^2$)/2



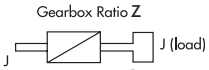

### Equivalent Inertia of Slide Mass on a Ballscrew

J = m(s/2$\pi$)$^2$




### Effect of Gear Ratio on Reflected Inertia

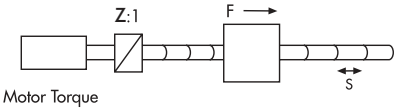
J = J(load) / R$^2$




### Torque Required to Produce a Force on a Leadscrew

M = Required Torque, Nm
F = Linear Force, N
R = Gearbox Ratio (Speed Reducing)
(R = 1 for direct drive)
s = Ballscrew Pitch, m
$\eta$ = Efficiency

M = Fs/2$\pi$R$\eta$




### Example

F = 10,000N
s = 10mm (0.01m)
R = 2:1
$\eta$ = 0.9

Required motor torque M = (10,000 x 0.01) / (2$\pi$ x 2 x 0.9)
= 8.85Nm

(nb; The required force is often provided in kg's or kgf. This implies the force exerted on the mass by gravity (g) and must be multiplied by 9.81 to obtain the force in N (newtons); eg A "force" of 100kg is 981N)


Telephone : 704-588-3246 Fax: 704-588-3249

## EUROTHERM DRIVES WORLDWIDE
### Overseas Companies


**AUSTRALIA**
**Eurotherm Pty Limited**
Unit 10,
40 Brookhollow Avenue,
Baulkham Hills,
New South Wales 2153,
Australia.
Tel: +61 (2) 9634 8444
Fax: +61 (2) 9634 8555

**AUSTRIA**
**Eurotherm GmbH**
Geiereckstrasse 18/1,
A1110 Vienna,
Austria.
Tel: +43 (1) 798 7601
Fax: +43 (1) 798 7605

**BELGIUM**
**Eurotherm B.V.**
Rue du Val-Notre Dame 384,
B-4520 Moha (Vinalmont),
Tel: +32 85 274080
Fax: +32 85 274081

**CANADA**
**Eurotherm Drives Inc.**
880 Laurentian Drive,
Burlington,
Ontario, L7N 3V6,
Canada.
Tel: +1 (905) 333 7787
Fax: +1 (905) 632 0107

**DENMARK**
**Eurotherm Drives Denmark**
Enghavevej 11,
DK- 7100,
Vejle
Denmark.
Tel: +45 (70) 201311
Fax: +45 (70) 201312

**FINLAND**
**Eurotherm Drives Finland**
Storgatan 13, 2-VAN
Fin-686 00
Jakobstad
Tel: +358 (0)67 231040
Fax: +358 (0)67 231043

**HONG KONG**
**Eurotherm Ltd**
Unit D,
18/F Gee Chang Hong Centre,
65 Wong Chuk Hang Road,
Aberdeen,
Hong Kong.
Tel: +852 2873 3826
Fax: +852 2870 0148

**INDIA**
**Eurotherm India Limited**
152 Developed Plots Estate,
Perungudi,
Chennai 600 096
India.
Tel: +91 (44) 496 1129
Fax: +91 (44) 496 1831

**IRELAND**
**Eurotherm Ireland Ltd**
I.D.A. Industrial Estate,
Monread Road,
Naas,
Co. Kildare,
Republic of Ireland.
Tel: +353 (45) 879937
Fax: +353 (45) 875123

**JAPAN**
**Densei-Lambda K K**
Eurotherm Division, Aroma Square,
5F, PO Box 40, 5-37-1, Kamata,
Ota-Ku, Tokyo 144-8721
Tel: +81 (03) 5714 0620
Fax: +81 (03) 5714 0621

**KOREA**
**Eurotherm Korea Ltd**
3F J-Building,
402-3 Poongnab-Dong,
Songpa-Ku,
Seoul 138-040,
Korea.
Tel: +82 (2) 478 8507
Fax: +82 (2) 488 8508

**NETHERLANDS**
**Eurotherm B.V.**
Genielaan 4,
2404CH,
Alpen aan den Rijn,
Netherlands.
Tel: +31 (172) 411 752
Fax: +31 (172) 417 260

**NORWAY**
**Eurotherm Drives Norge**
Postboks 650,
1411 Kolbotn,
Oslo, Norway.
Tel: +47 (66) 803330
Fax: +47 (66) 803131

**SPAIN**
**Eurotherm Espana SA**
Calle La Granja 74,
Pol. Ind. Alcobendas,
28108,
Madrid,
Spain.
Tel: +34 (91) 6616001
Fax: +34 (91) 6619093

**SWITZERLAND**
**Eurotherm Produkte (Schweiz) AG**
Schwerzistrasse 20
CH-8807 Freienbach,
Switzerland.
Tel: +41 (55) 4154400
Fax: +41 (55) 4154415


### Local availability and service support also in:

ARGENTINA – BRAZIL – CHILE – COLOMBIA – CYPRUS – CZECH REPUBLIC
DENMARK – EGYPT – HUNGARY – ICELAND – INDONESIA – IRAN
ISRAEL – KENYA – KOREA – LITHUANIA – MALAYSIA – MOROCCO
NEW ZEALAND – NORWAY – PHILIPPINES – POLAND – PORTUGAL
ROMANIA – SINGAPORE – SOUTH AFRICA – TAIWAN
THAILAND – TURKEY – UNITED ARAB EMIRATES

EUROTHERM
DRIVES

### General Commercial Information

Note that we have a $100 minimum order charge. Please confirm price and delivery against your specific requirements when placing your order. All information presented in this catalog is given without commitment as a general indication of our product range.

Every effort has been taken to ensure the accuracy of this catalog. However, we are continuously improving our products which could, without notice, result in amendments to specifications, or omissions to this catalog. We cannot accept responsibility for consequential damage, injury, loss or expenses resulting therefrom.

If you send us a written order containing your standard purchasing conditions, we will assume you are prepared to accept our terms of trading unless you send a covering letter stating to the contrary. If you wish to confirm in writing an order placed verbally or by fax, please assist us in avoiding duplication by clearly marking it 'confirmation only'.

Cancellation of orders or return of goods may only be made with the consent of Eurotherm Drives. Any credit agreed may be subject to a handling, retest and repackaging charge. Custom made goods may be excluded from return.

These general terms of business are for guidance only and are applicable within the USA. All goods, services and software offered are subject to our Terms and Conditions of Sale, copies of which are available upon request.

### Compliance Information

The products offered in this catalog are classed as professional equipment for restricted sales applications to end users of permanently connected industrial motor control applications. As such, these products have been assessed in accordance with industrial electrical/mechanical safety and EMC standards, and must be installed and maintained by qualified personnel in accordance with local regulations. A qualified person is someone who is technically competent and familiar with all electrical/mechanical safety and EMC information and established practices. Refer to individual product manuals for information concerning compliance and other legal responsibilities.

## EUROTHERM DRIVES WORLDWIDE SALES AND SERVICE OFFICES


### UNITED STATES
**Eurotherm Drives, Inc.**
9225 Forsyth Park Drive, Charlotte, North Carolina 28273-3884
**Tel: 704-588-3246 Fax: 704-588-3249**

### ENGLAND
**Eurotherm Drives Ltd.**
New Courtwick Lane, Littlehampton, West Sussex. BN17 7PD
**Tel: 011-44-1-903-737000 Fax: 011-44-1-903-732444**

### FRANCE (DRIVES)
**Eurotherm Vitesse Variable SA**
27 Avenue du Québec, Z.A. de Courtaboeuf, 91951 Les Ulis Cedex
**Tel: 011-331-6918-5151 Fax: 011-331-6918-5059**

### FRANCE (SERVO)
**Eurotherm Parvex**
8 Avenue du Lac, B.P. 249, F-21007 Dijon Cedex
**Tel: 011-333-8042-4140 Fax: 011-333-8042-4123**

### GERMANY
**Eurotherm Antriebstechnik GmbH**
Von-Humboldt - Strasse 10, 64646 Heppenheim
**Tel: 011-49-6252-7982-00 Fax: 011-49-6252-7982-05**

### ITALY
**Eurotherm Drives SpA**
Via Gran Sasso 9, 20030 Lentate Sul Seveso, Milano
**Tel: 011-39-362-557308 Fax: 011-39-362-557312**

### SWEDEN
**Eurotherm Drivteknik AB**
Box 9084, S30013 Halmstad
**Tel: 011-46-35-177300 Fax: 011-46-35-108407**


**www.eurothermdrives.com** **E-mail: info@eurothermdrives.com**

**AC DRIVES** **DC DRIVES** **MOTORS** **LINK** **SERVO DRIVES**

Printed in U.S.A. HA350036 Issue 4 