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# DC590+ Integrator Series 2

DC Drives 3 HP - 2000 HP (15A - 2400A)

Parker SSD DRIVES

ENGINEERING YOUR SUCCESS.

# DC590+ DC Drive Integrator Series 2

Digital DC Drives - 3 to 2000 HP (15A – 2400A)

## Product Overview

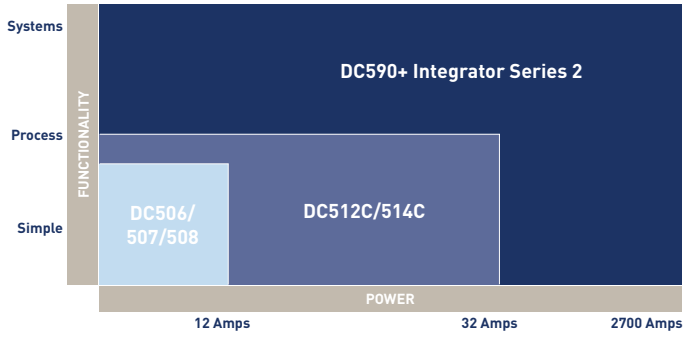
The DC590+ Integrator Series 2 sees the next step in the development of DC drive technology, derived from over 30 years experience in designing DC drives. With its innovative 32-bit control architecture, the DC590+ has the flexibility and functionality to more than meet the requirements of all applications, from basic motor installations through to the most demanding multi-motor systems.

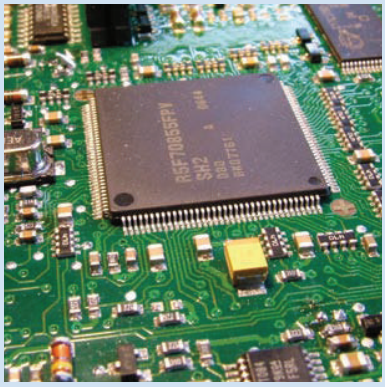
The DC590+ is also available as a "ready to install" drive package called the DRV. This is a single integrated module that includes all the associated power components within the package. This innovative approach radically reduces design time, panel space, wiring time and cost. The DRV concept is unique and comes from the experience gained from thousands of successful applications across a diverse range of industries.

**The DC590+ is easily integrated into new or existing systems, offering improved levels of performance and productivity.**

**As part of the full DC drives product range, the DC590+ further confirms Parker SSD Drives' position as the market leader in DC drive technology.**


### Product Overview Chart



## Advanced Control Architecture

Benefitting from the improved performance of a 32-bit RISC processor, the **DC590+ Integrator Series 2** delivers enhanced functionality and increased flexibility, making it suitable for use in a wider range of more complex applications.

- Faster drive response
- Greater control capabilities
- Increased math and logic function blocks
- Enhanced diagnostic and programming functionality
- Common programming tools with other SSD Drives models

## Next Generation Technology

Building upon the highly successful DC590+ drive used in thousands of applications world-wide, the DC590+ Integrator Series 2 drive takes DC motor control to the next level. With its state-of-the-art advanced 32-bit control architecture, the DC590+ drive delivers highly functional and flexible control suited to a whole host of industrial applications.

Providing control for some of the most demanding motor control applications, Parker's DC experience and technologies are some of the most advanced in the industrial marketplace. With drives from 1 Amp through to 2700 Amps, Parker can provide the optimum solution to suit any application.

## Typical Applications

- **Converting machinery**
- **Plastics and rubber processing machinery**
- **Wire and cable**
- **Material handling**
- **Automotive**

## Function Block Programming

Function Block Programming is a tremendously flexible control structure that allows an almost infinite combination of user functions to be realized with ease. Each control function (an input, output, process PID for example) is represented as a software block that can be freely interconnected to all other blocks to provide any desired action.

The drive is shipped with the function blocks pre-configured as a standard DC drive so you can operate it straight from the box without further adjustments. Alternatively you can create your own control strategy with DSE Lite software, often eliminating the need for an external PLC and its associated complexity and cost.

## Feedback Options

The DC590+ has a range of options which are compatible with the most common feedback devices enabling simple motor control through to the most sophisticated multi-motor system. Armature voltage feedback is standard without the need for any interface option.

- **Analog tach generator - AC or DC**
- **Encoder - 5, 12, 15, or 24V**
- **Optical fiber microtach encoder**

## Interface Options

Designed with connectivity in mind, the DC590+ has a number of communications and I/O options that allow the drive to take control of the application, or be integrated into a larger system. When combined with function programming, custom functions and control can be easily created offering the user a highly flexible and versatile platform for DC motor control.

## Programming/ Operator Controls

Featuring an intuitive menu structure, the ergonomically designed operator panel allows quick and easy access to all parameters and functions of the drive via a bright, easy to read backlit display and tactile keypad. Additionally, it provides local control of start/stop, speed demand and rotation direction to greatly assist with machine commissioning.

- **Multi-Language alpha-numeric display**
- **Customized parameter values and legends**
- **On drive or remote mounting**
- **Local control of start/stop, speed and direction**
- **Quick set-up menu**

## Connectivity

Whatever the complexity of your control scheme, the DC590+ has the interface to suit. As standard there's enough analog and digital I/O for the most complex applications. Alternatively, add the relevant 'technology box' for immediate access to serial communications and Fieldbus networks. The DC590+ has been designed to fit seamlessly, and without compromise, into any control environment.

## Analog/Digital Control

- **5 Analog Inputs (12 bit + sign)**
- **3 Analog Outputs**
- **9 Digital Inputs (5 configurable)**
- **3 Digital Outputs**

## Serial Communications and Fieldbus Options

- **Profibus-DP**
- **Canopen**
- **Modbus RTU**
- **RS422/RS485**
- **Controlnet**
- **Ei Bisynch**
- **LINK**
- **Devicenet**
- **Modbus+**
- **Ethernet**

**All DC590+ units are available as non-regenerative or full 4-Quadrant regenerative models**


Standard 6901 MMI/Programming Key-pad is easy to use, and may be remote mounted. It is compatible with other SSD Drives models

## DRV - Packaged DC Drive Technology

The DC590+ is available in either module, or alternatively 'DRV' format.

The DRV version is a self-contained packaged drive that includes all the peripheral power components associated with a DC drive system, integrally fitted within the footprint area of the drive.

### DRV version includes:

- AC line or DC armature contactor
- AC line fuses
- DC fuse (regenerative version)
- Control/field fuses
- Provision for optional motor blower starter
- Provision for optional auxiliary control transformer

### Saving You:

- Design time
- Panel space
- Component mounting and wiring
- Component sourcing
- Complexity
- Time and cost

## DC590+ Designed for Systems

The DC590+ Integrator Series is the ultimate system drive, designed to meet the exacting demands of the most complex and sophisticated multi-drive applications across a diverse range of industries. All the following functions are available as standard without the need for any additional hardware.

- Function Block Programming
- Software Configurable I/O
- High Resolution (12 bit) Analog Inputs
- Winder Control
  - Open loop with inertia compensation
  - Closed loop speed or current
  - Load cell/dancer process PID
- Math Functions
- Logic Functions
- Controlled Field Supply
- 'S' Ramp and Digital Ramp

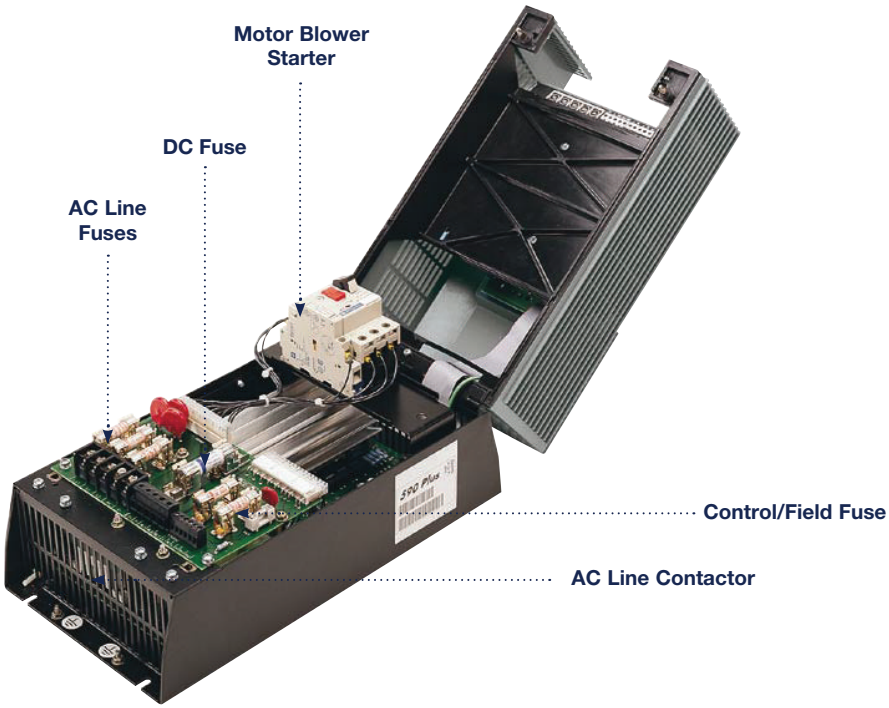
## DC590+ Designed For A World Market

The DC590+ is available with full application and service support in over fifty countries worldwide. So wherever you are, you can be confident of full back up and support.

- Support in over 50 countries
- Multi-language menus
- Input voltage ranges from 220-690V (Special voltages available)
- CE marked
- UL and c-UL listed through 500 HP
- 50/60Hz

Traditional DC Drive Section

DC590+ DRV equivalent, illustrating panel space saving and simplification of panel wiring



# Specification

**Ratings Power Configuration**
DC590+ Four Quadrant Regenerative;
2 Fully Controlled Three Phase Thyristor Bridges
DC591+ Two Quadrant Non-Regenerative;
1 Fully Controlled Three Phase Thyristor Bridge

Thyristor Controlled Variable Field Supply

**Field Current (Amps DC)**
4A Frame 1
10A Frame 2 and 3
30A Frame 4
60A Frame 6 and H

**Field Voltage (VDC)**
AC Input x 0.9 maximum

**Armature Current Ratings (Amps DC)**
See table below for ratings.
Overload 200% for 10 secs, 150% for 30 secs
Higher ratings with reduced overloads available
Please refer to manual

**Armature Voltage (VDC)**
AC Input x 1.2 maximum

**AC Supply Voltage (VAC)**
110 - 220V (±10%) All Sizes
220 - 500V (±10%) All Sizes
500 - 600V (±10%) Frame 4, 6, and H
600 - 690V (±10%) Frame 6 and H
50/60Hz Three Phase

**Environment**
**Ambient Operating Temperature**
0°-45°C (32°-113°F) Frame 1 and 2
0°-40°C (32°-104°F) Frame 3, 4, 6 and H
Derate 1% per °C above ambient to 55°C (131°F) max

**Operating Altitude**
Up to 1640 ft (500m) above sea level
Derate 1% per 656 ft (200m) above 1640 ft (500m) to maximum of 16,400 ft (5000m)

**Protection**
High Energy MOV's
Heatsink Overtemperature
Instantaneous Overcurrent
Thyristor Trigger Failure
Inverse Time Overcurrent
Interline Snubber Network
Field Failure
Zero Speed Detection
Speed Feedback Failure
Standstill Logic
Motor Overtemperature
Stall Protection

**Inputs/Outputs**
**Analog Inputs (5 Total - 12 bit plus sign)**
1 – Speed Demand Setpoint (-10/0/+10V)
4 – Configurable

**Analog Outputs (3 Total - 11 bit plus sign)**
1 – Armature Current Output (-10/0/+10V or 0 - 10V)
2 – Configurable

**Digital Inputs (9 Total - 24VDC max)**
1 – Program Stop
1 – Coast Stop
1 – External Trip
1 – Start/Run
5 – Configurable

**Thermistor Input**
1 – Isolated

**Digital Outputs (3 Total - 24V(max 30V) 100mA)**
Short circuit protected
3 – Configurable

**Reference Supplies**
1 – +10VDC
1 – -10VDC
1 – +24VDC

**Optional Equipment**
6911 Operator/Programming Controller
Feedback Boards
- Tach generator
- Encoder
- Optical Fiber Microtach Encoder

Communication Technology Box
- LINK
- Profibus DP
- Devicenet
- Controlnet
- Ethernet
- Canopen
- Modbus +
- EI Bisynch/Modbus/RS422/RS485

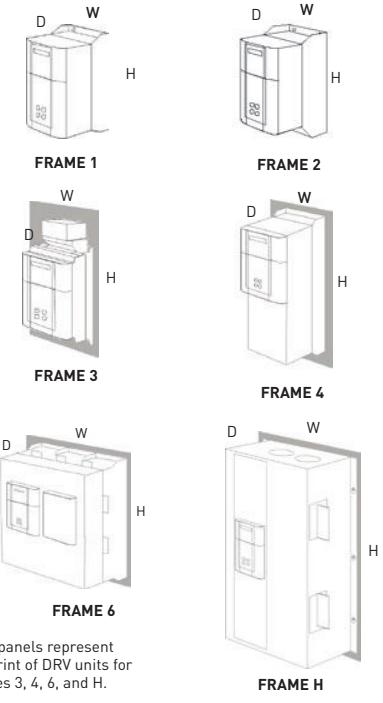
**Standards**
- The DC590+ series meets the following standards when installed in accordance with the relevant product manual:
- CE Marked to EN50178 (Safety, Low Voltage Directive)
- CE Marked to EN61800-3 (EMC Directive)
- UL listed to safety standard UL508C through 500 HP
- cUL listed to Canadian standard C22.2 #14 through 500 HP

Valid at time of print

## Dimensions - For estimation only

| Product Code | | HP Rating | Amps | Frame | Dimensions (in/mm) | | |
|---|---|---|---|---|---|---|---|
| Non-Regenerative | Regenerative | (230/460) | (Max) | | H | W | D |
| 955+8N0007 | 955+8R0007 | 3/7.5 | 15 | 1 | 14.8/375 | 7.9/200 | 8.7/220 |
| 955+8N0020 | 955+8R0020 | 10/20 | 35 | 1 | 14.8/375 | 7.9/200 | 8.7/220 |
| 955+8N0030 | 955+8R0030 | 15/30 | 55 | 2 | 21.5/546 | 7.9/200 | 11.5/292 |
| 955+8N0040 | 955+8R0040 | 20/40 | 70 | 2 | 21.5/546 | 7.9/200 | 11.5/292 |
| 955+8N0050 | 955+8R0050 | 25/50 | 90 | 2 | 21.5/546 | 7.9/200 | 11.5/292 |
| 955+8N0060 | 955+8R0060 | 30/60 | 110 | 2 | 21.5/546 | 7.9/200 | 11.5/292 |
| 955+8N0075 | 955+8R0075 | 40/75 | 125 | 2 | 21.5/546 | 7.9/200 | 11.5/292 |
| 955+8N0100 | 955+8R0100 | 50/100 | 165 | 2 | 21.5/546 | 7.9/200 | 11.5/292 |
| 955+8N0125-A3 | 955+8R0125 | 60/125 | 206 | 3 | 28.9/735 | 17.0/432 | 8.4/213 |
| 955+8N0125 | 955+8R0125 | 60/125 | 206 | 3 | 27.0/686 | 17.0/432 | 8.4/213 |
| 955+8N0150-A3 | 955+8R0150 | 75/150 | 246 | 3 | 28.9 735 | 17.0/432 | 8.4/213 |
| 955+8N0150 | 955+8R0150 | 75/150 | 246 | 3 | 27.0 686 | 17.0/432 | 8.4/213 |
| 955+8N0200-A4 | 955+8R0200 | 100/200 | 360 | 4 | 54.0/1372 | 18.0/457 | 14.9/378 |
| 955+8N0200-D4 | 955+8R0200 | 100/200 | 360 | 4 | 39.0/991 | 21.0/533 | 15.1/384 |
| 955+8N0250-A4 | 955+8R0250 | 125/250 | 425 | 4 | 54.0/1372 | 18.0/457 | 14.9/378 |
| 955+8N0250-D4 | 955+8R0250 | 125/250 | 425 | 4 | 39.0/991 | 21.0/533 | 15.1/384 |
| 955+8N0300-A4 | 955+8R0300 | 150/300 | 490 | 4 | 54.0/1372 | 18.0/457 | 14.9/378 |
| 955+8N0300-D4 | 955+8R0300 | 150/300 | 490 | 4 | 39.0/991 | 21.0/533 | 15.1/384 |
| 955+8N0400-A4 | 955+8R0400 | 200/400 | 700 | 4 | 54.0/1372 | 18.0/457 | 14.9/378 |
| 955+8N0400-D4 | 955+8R0400 | 200/400 | 700 | 4 | 39.0/991 | 21.0/533 | 15.1/384 |
| 955+8N0500-A4 | 955+8R0500 | 250/500 | 815 | 4 | 54.0/1372 | 18.0/457 | 14.9/378 |
| 955+8N0500-D4 | 955+8R0500 | 250/500 | 815 | 4 | 39.0/991 | 21.0/533 | 15.1/384 |
| 955+8N0700-D6 | 955+8R0700-D6 | 700 | 1200 | 6 | 38.0/966 | 56.0/1422 | 17.5/444 |
| 955+8N1000-D6 | 955+8R1000-D6 | 1000 | 1600 | 6 | 38.0/966 | 56.0/1422 | 17.5/444 |
| 955+8N1200-D6 | 955+8R1200-D6 | 1200 | 1950 | 6 | 38.0/966 | 56.0/1422 | 17.5/444 |
| 955+8N1000 | 955+8R1000 | 1000 | 1600 | H | 68.0/1727 | 60.0/1524 | 17.2/436 |
| 955+8N1250 | 955+8R1250 | 1250 | 2000 | H | 68.0/1727 | 60.0/1524 | 17.2/436 |
| 955+8N1500 | 955+8R1500 | 1500 | 2400 | H | 68.0/1727 | 60.0/1524 | 17.2/436 |
| 591+0243/500 | 590+0243/500 | 75/150 | 243 | 3 | 19.1/485 | 11.8/300 | 9.2/234 |
| 591+0380/500 | 590+0380/500 | 100/200 | 380 | 4 | 27.6/700 | 10.0/253 | 14.1/358 |
| 591+0500/500 | 590+0500/500 | 150/300 | 500 | 4 | 27.6/700 | 10.0/253 | 14.1/358 |
| 591+0725/500 | 590+0725/500 | 200/400 | 725 | 4 | 27.6/700 | 10.0/253 | 14.1/358 |
| 591+0830/500 | 590+0830/500 | 250/500 | 830 | 4 | 27.6/700 | 10.0/253 | 14.1/358 |
| 591+1250/500 | 590+1250/500 | 750 | 1250 | 6 | 28.1/715 | 27.0/686 | 17.3/440 |
| 591+1600/500 | 590+1600/500 | 1000 | 1600 | 6 | 28.1/715 | 27.0/686 | 17.3/440 |
| 591+1950/500 | 590+1950/500 | 1200 | 1950 | 6 | 28.1/715 | 27.0/686 | 17.3/440 |
| 591+2000/500 | 590+2000/500 | 1250 | 2000 | H | 37.6/956 - 55.4/1406* | 33.5/850 | 16.4/417 |
| 591+2400/500 | 590+2400/500 | 1500 | 2400 | H | 37.6/956 - 55.4/1406* | 33.5/850 | 16.4/417 |

Black product code indicates DRV package. Blue product code indicates chassis (controller only * First dimension is for non-regen, second is for regen




Gray panels represent footprint of DRV units for frames 3, 4, 6, and H.

Frame 1-4 have integral cooling fan assemblies where required. Optional ducting kit for cubicle roof external ventilation available for frame 4. Frame Size H has fan cooling assembly that can be cubicle roof mounted or drive mounted. Add 5.9" (150mm) to overall height for drive mounted option.

Note: Dimension table includes only the 230/460 volt ratings. Drives for a wide range of input voltages are available. For product codes, current ratings, and dimensional data on 110-220 volt, 575 volt, and 690 volt units, please consult factory. Drives of higher power ratings can also be provided upon request.

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