DC590+ Integrator Series 2
DC Drives 3 HP - 2000 HP (15A - 2400A)
**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.

**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
**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

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**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

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**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

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**Traditional DC Drive Section**

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

Rating 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 sec, 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 606 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)
- 2 – 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 - 24VC max)
- 1 – Program Stop
- 1 – Coast Stop
- 1 – External Trip
- 1 – Start/Run
- 5 – Configurable

Thermistor Input
- 1 – Isolated

Dimensions

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<th>Specifications</th>
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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
  - Fiber Optical Microswitch Encoder
- Communication Technology Box
  - LINK
  - Profinet DP
  - DeviceNet
  - ControlNet
  - Ethernet
  - Canopen
  - Modbus +
  - El 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

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