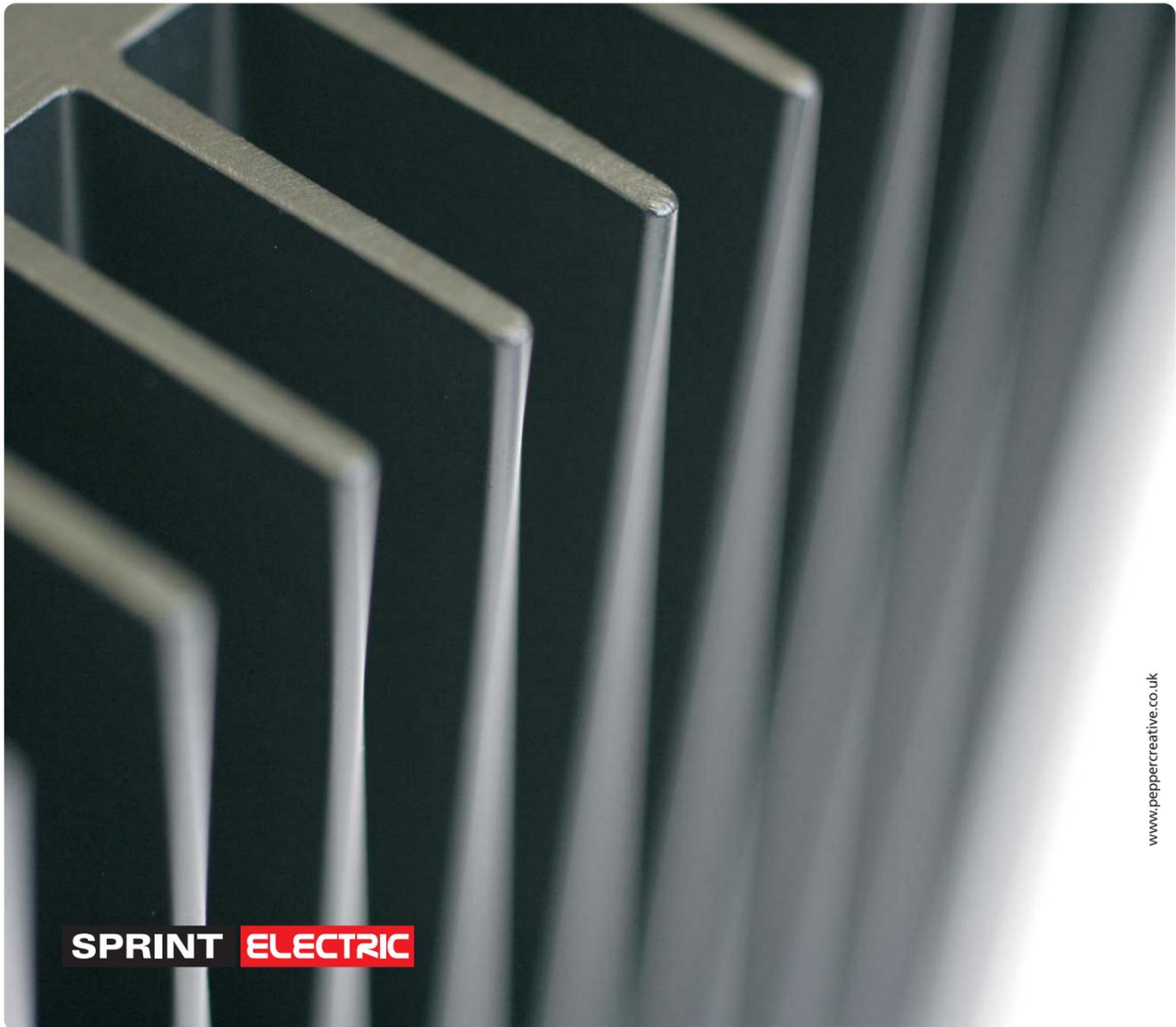


Find out more:  
[www.sprint-electric.com](http://www.sprint-electric.com)

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DC MOTOR CONTROL TECHNOLOGY  
PRODUCT CATALOGUE

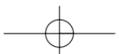
## SINGLE PHASE DC DRIVES



[www.peppercreative.co.uk](http://www.peppercreative.co.uk)

**SPRINT ELECTRIC**

**SPRINT ELECTRIC**



# Contents:

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# DC Motor Control Technology:

## Increase your productivity, save energy and reduce downtime.

With an extensive range of DC motor control products, you will find an answer to your industrial automation questions.

### Your Industry - Our Experience.

We've used our renowned industrial automation experience to design a range of DC motor controllers which provide you with solutions to the most demanding motor control applications.

It's now easier than ever to design new DC motor control systems or improve the performance of an existing application by retrofitting with the latest DC technology.

### Save with Compact Designs and Ex-Stock Delivery.

You can save cabinet space in new control systems, or easily upgrade an existing DC motor application. Compact design comes as standard.

Reduce your downtime by relying on our ex-stock delivery. With a global network of partners and all products built for stock, you can quickly get your business moving again.

### Three Phase Products.

We also manufacture three phase DC motor controllers. Please see our Three Phase Product Catalogue for details.

# DIN RAIL MOUNTING OPTIONS

340  
680  
1220

Page 05



340i  
680i  
1220i

Page 06-07



340XRi  
680XRi  
1220XRi

Page 08-09



PRODUCT NAME

# 340

340 0.55kW / 0.75HP  
680 0.75kW / 1.0HP  
1220 1.8kW / 2.0HP

DESCRIPTION

Ultra compact DC motor control. Non isolated.

Make upgrading your existing control panel easier. Save space in new DC single direction motor control systems. The ultra compact DIN rail mounting package lets you install quickly.

Three options are available for controlling DC motors up to 12.2 Amps. You can use this versatile range of non-isolated controllers for

permanent magnet, shunt wound motors or universal motors.

To make your installation quick and simple, all 340, 680, and 1220 series controllers have easy to access drive adjustments, plug-on screw terminals and a small footprint from just 35mm x 105mm.



AT A GLANCE  
340, 680, 1220 series

340 controller for DC motors rated up to 3.4 Amps (0.55KW/0.75HP)

680 controller for DC motors rated up to 6.8 Amps (0.75KW/1HP)

1220 controller for DC motors rated up to 12.2 Amps (1.8KW/2HP)

DIN rail mounting

Easy to access drive adjustments

Plug-on screw terminals

Small footprint

Technical highlights:

Switch selectable Tach or Armature voltage feedback

Adjustable IR compensation for improved AVF speed regulation

Selectable dual voltage AC supply

Aux speed trim input available in AVF mode

User adjustable:

Ramp

Max motor speed

Min motor speed

IR comp

Max motor current

MODEL COMPARISON

MODEL	AC SUPPLY RANGE	TYPICAL ARMATURE VOLTAGE	MAX CONTINUOUS ARMATURE CURRENT	NOMINAL POWER
340	100 to 130v	90v	3.4A	0.25kW (0.35HP)
	200 to 264v	180v	3.4A	0.55kW (0.75HP)
680	100 to 130v	90v	6.8A	0.55kW (0.75HP)
	200 to 264v	180v	6.8A	0.75kW (1.0HP)
1220	100 to 130v	90v	12.2A	0.75kW (1.0HP)
	200 to 264v	180v	12.2A	1.8kW (2.0HP)

DIMENSIONS 340

H 105 mm	
W 35 mm	
D 120 mm	
680 / 1220	
H 105 mm	
W 45 mm	
D 120 mm	

See parts list at back for low voltage supply options and fuses. Refer to features chart for further details or download product manual for full specification.

## AT A GLANCE

340i, 680i, 1220i series

### Fully isolated control electronics

340i controller for DC motors rated up to 3.4 Amps (0.55KW/0.75HP)

680i controller for DC motors rated up to 6.8 Amps (0.75KW/1HP)

1220i controller for DC motors rated up to 12.2 Amps (1.8KW/2HP)

### DIN rail mounting

Easy to access drive adjustments

Plug-on screw terminals

Small footprint

UL, CuL, CE approved

### PRODUCT NAME

# 340i

340i 0.55kW / 0.75HP  
 680i 0.75kW / 1.0HP  
 1220i 1.8kW / 2.0HP

### DESCRIPTION

## Fully isolated DC motor control with compact design

Improving or upgrading your single direction DC motor control system is easier with this series of fully-isolated controllers. The ultra compact DIN rail mounting package lets you quickly integrate the 340i, 680i and 1220i series with your existing motor control equipment.

Three options are available for controlling DC motors up to 12.2 Amps. You can use this

versatile series of fully-isolated controllers for permanent magnet or shunt wound motors.

To make your installation quick and simple, all 340i, 680i and 1220i series controllers have easy to access drive adjustments, plug-on screw terminals and a small footprint from just 60mm x 105mm.



See parts list at back for low voltage supply options and fuses.

### PRODUCT NAME

# 340i

340i 0.55kW / 0.75HP  
 680i 0.75kW / 1.0HP  
 1220i 1.8kW / 2.0HP

### Technical highlights:

340i, 680i, 1220i series  
 Switch selectable Tach or Armature voltage feedback  
 Adjustable IR compensation for improved AVF  
 Speed or torque control  
 Selectable dual voltage AC supply  
 Aux speed input  
 150% overload with stall protection

### User adjustable:

Max motor speed  
 Min motor speed  
 Up ramp  
 Down ramp  
 Stability  
 I<sub>max</sub>  
 IR comp  
 AVF/Tach switch  
 Speed range switch  
 AC voltage selector  
 Signal level comparator

### Signal terminals:

+10V ref	Level output
Min speed	Level input
Ramped input +	Overload output
Output +/-	Trip output
Common	Ramp output
Input +/-	Demand output
Pushbutton +	Speed output
Pushbutton -	Current output
Run input	Speed input
Common	Torque input
Tach input	

### MODEL COMPARISON

MODEL	AC SUPPLY RANGE	TYPICAL ARMATURE VOLTAGE	MAX CONTINUOUS ARMATURE CURRENT	NOMINAL POWER
340i	100 to 130v	90v	3.4A	0.25kW (0.35HP)
	200 to 264v	180v	3.4A	0.55kW (0.75HP)
680i	100 to 130v	90v	6.8A	0.55kW (0.75HP)
	200 to 264v	180v	6.8A	0.75kW (1.0HP)
1220i	100 to 130v	90v	12.2A	0.75kW (1.0HP)
	200 to 264v	180v	12.2A	1.8kW (2.0HP)

### DIMENSIONS 340i

H	105 mm
W	60 mm
D	120 mm
680i / 1220i	
H	105 mm
W	70 mm
D	120 mm

Refer to features chart for further details or download product manual for full specification.

## AT A GLANCE

340XRi, 680XRi,  
1220XRi series

**4 Quadrant regenerative  
DC motor controller**

**Fully isolated control  
electronics**

**340XRi controller for DC  
motors rated up to 3.4 Amps  
(0.55KW/0.75HP)**

**680XRi controller for DC  
motors rated up to 6.8 Amps  
(0.75KW/1HP)**

**1220XRi controller for DC  
motors rated up to 12.2 Amps  
(1.8KW/2HP)**

**DIN rail mounting**

**Easy to access drive  
adjustments**

**Plug-on screw terminals**

**Small footprint**

**UL, CuL, CE approved**

PRODUCT NAME

# 340XRi

**340XRi** 0.55kW / 0.75HP  
**680XRi** 0.75kW / 1.0HP  
**1220XRi** 1.8kW / 2.0HP

DESCRIPTION

## Regenerative DC motor control with compact Design. Fully isolated control electronics.

This 4 Quadrant regenerative DC motor controller gives a fast controlled response over the full forward/reverse speed range for motoring and braking.

Improve your energy efficiency by regenerating energy into the mains supply whilst under braking. The energy invested accelerating the load mass is recovered when braking. There is no dissipation of energy in wasteful braking resistors.

The compact DIN rail mounting package uses less panel space so you can save space as well as energy.

Three options are available for controlling DC motors up to 12.2 Amps. You can use this versatile series of fully-isolated controllers for permanent magnet or shunt wound motors.

To make your installation quick and simple, all 340XRi, 680XRi and 1220XRi series controllers have easy to access drive adjustments, plug-on screw terminals and a small footprint from just 60mm x 105mm.



See parts list at back for low voltage supply options and fuses.

PRODUCT NAME

# 340XRi

**340XRi** 0.55kW / 0.75HP  
**680XRi** 0.75kW / 1.0HP  
**1220XRi** 1.8kW / 2.0HP

## Technical highlights:

- Switch selectable Tach or Armature voltage feedback
- Adjustable IR compensation for improved AVF
- Speed or torque control
- Selectable dual voltage AC supply
- Aux speed input
- Pushbutton reversing function
- 150% overload with stall protection
- Built-in current limit protection
- Full 4 Quadrant operation

## User adjustable:

- Max motor speed
- Min motor speed
- Up ramp
- Down ramp
- Stability
- I<sub>max</sub>
- IR comp
- AVF/Tach switch
- Speed range switch
- AC voltage selector
- Signal level comparator

## Signal terminals:

+10V ref	Level output
Min speed	Level input
Ramped input +	Overload output
Output +/-	Trip output
Common	Ramp output
Input +/-	Demand output
Pushbutton +	Speed output
Pushbutton -	Current output
Run input	+ Speed input
Common	Torque input
Tach input	

## MODEL COMPARISON

MODEL	AC SUPPLY RANGE	TYPICAL ARMATURE VOLTAGE	MAX CONTINUOUS ARMATURE CURRENT	NOMINAL POWER
340XRi	100 to 130v	90v	3.4A	0.25kW (0.35HP)
	200 to 264v	180v	3.4A	0.55kW (0.75HP)
680XRi	100 to 130v	90v	6.8A	0.55kW (0.75HP)
	200 to 264v	180v	6.8A	0.75kW (1.0HP)
1220XRi	100 to 130v	90v	12.2A	0.75kW (1.0HP)
	200 to 264v	180v	12.2A	1.8kW (2.0HP)

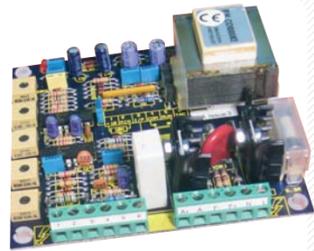
## DIMENSIONS 340XRi

<b>H</b>	105 mm
<b>W</b>	60 mm
<b>D</b>	120 mm
<b>680XRi / 1220XRi</b>	
<b>H</b>	105 mm
<b>W</b>	70 mm
<b>D</b>	120 mm

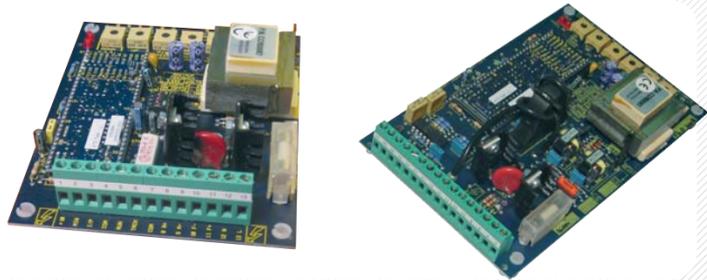
Refer to features chart for further details or download product manual for full specification.

# PANEL MOUNTING OPTIONS

370  
Page 11



400  
400i  
Page 12-13



800  
1200  
Page 14-15



1600i  
3200i  
Page 16-17



3600XRi  
Page 18-19



PRODUCT NAME

# 370

Non Isolated

0.55kW / 0.75HP

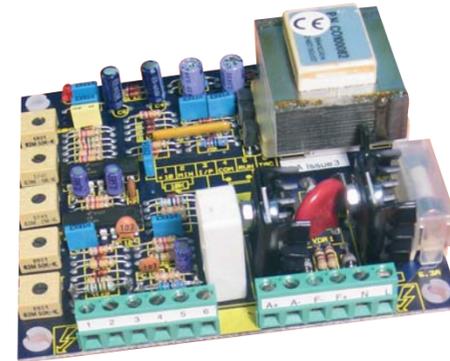
DESCRIPTION

Small footprint speed controller for permanent magnet or shunt wound motors up to 0.55kW.

Easily adjustable parameters include minimum and maximum motor speed, armature current, acceleration rate and IR compensation.

AC supply input selection for international mains voltage compatibility.

This unit is non-isolated.



SPECIFICATION

Speed range:	0 - 100%
Speed regulator:	0.1% tachogenerator 2% armature voltage feedback
Armature:	3.7 Amps continuous 200v max
Field:	0.5 Amps at 0.9 x AC supply voltage
Speed loop:	Full P + I armature voltage feedback
Current loop:	Full P + I current shunt feedback
Customer presets:	Max speed, min speed, up ramp, max armature current, IR comp. Adjustment non interactive ensuring ease of adjustment.

MODEL COMPARISON

MODEL	AC SUPPLY RANGE	TYPICAL ARMATURE VOLTAGE	MAX CONTINUOUS ARMATURE CURRENT	NOMINAL POWER
370	90 to 120v	90v	3.7A	0.25kW (0.38HP)
	200 to 264v	180v	3.7A	0.55kW (0.75HP)

DIMENSIONS

H	100 mm
W	100 mm
D	42 mm

See parts list at back for low voltage supply options and fuses.  
Refer to features chart for further details or download product manual for full specification.

## 370 KEY FEATURES

For DC motors rated up to 3.7 Amps

Integral AC supply fuse

Selectable dual international voltage supply 110/240v AC 50/60HZ

Adjustable current overload protection

Tachogenerator or armature voltage speed feedback

Adjustable acceleration rate between 1 and 20 seconds

Remote stop/start signal input facility

Adjustable IR compensation for improved AVF speed regulation

Sophisticated dual loop control

Infinitely variable speed adjustment via remote potentiometer

Electronic soft start

Drive run input

Suitable for permanent magnet, shunt wound or universal motors

Compact footprint

## 400/400i KEY FEATURES

For DC motors rated up to 4 Amps

Single Quadrant operation

Extra 50% peak torque for rapid acceleration or shock loads

Torque control input for basic winding or tension control, with overspeed limiting

Ultra stable potentiometer reference for optimum long term speed and torque stability

Compact size

PRODUCT NAME

# 400

Non Isolated

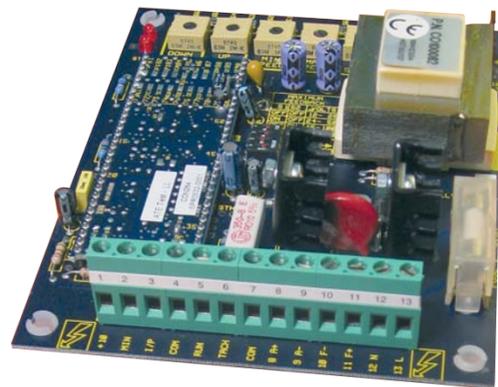
0.55kW / 0.75HP

DESCRIPTION 400 / 400i

For motors rated up to 4 Amps these are the first of an extensive range of models featuring the Sprint micro analog processor.

The micro analog processor provides many user benefits normally only seen in expensive "high end" products. This philosophy allows for cost saving solutions by meeting the users exact requirements and enhancing process performance.

As with all Sprint Electric products quality and reliability is a paramount part of the design process.



400



400i

International dual voltage supply compatibility

Switch selectable Tach or Armature voltage feedback

Integral AC supply fuse

MODEL COMPARISON

MODEL	AC SUPPLY RANGE	TYPICAL ARMATURE VOLTAGE	MAX CONTINUOUS ARMATURE CURRENT	NOMINAL POWER
400	100 to 130v	90v	4A	0.25kW (0.38HP)
	200 to 264v	180v	4A	0.55kW (0.75HP)
400i	100 to 130v	90v	4A	0.25kW (0.38HP)
	200 to 264v	180v	4A	0.55kW (0.75HP)

DIMENSIONS 400

H 130 mm

W 100 mm

D 40 mm

400i

H 160 mm

W 100 mm

D 50 mm

See parts list at back for low voltage supply options and fuses

PRODUCT NAME

# 400i

Fully Isolated

0.55kW / 0.75HP

SPECIFICATION 400 / 400i

Control action: Dual Loop Proportional + Integral

Speed regulation: 0.1% Tachogenerator, 2% Armature Voltage

Armature: 4 Amps, continuous 200v max

Overload protection: Extra 50% peak torque for 30 secs prior to stall trip operation

Field output: 0.5 Amps at 0.9 x AC supply voltage

Customer presets: Max speed: 12v-200v full scale feedback  
Min speed 0-30% of max speed  
Up ramp (Acceleration) 1-30 secs  
Down ramp (Deceleration) 1-30 secs  
Stability  
IR comp  
Max Armature current 0-100%

Switches: Feedback voltage - 4 ranges  
Torque or speed mode  
Tachogenerator or armature voltage feedback

Inputs: Speed  
Torque  
Auxiliary speed input  
Auxiliary inverted speed input for trims etc.  
Run command  
Tachogenerator  
4-20mA or 0-20mA  
Pushbutton stop/start input

Outputs: Speed  
Current  
Setpoint ramp  
Total demand  
+/- 12v/-24v rails  
Zero Speed relay driver  
Stall relay driver

400 NON ISOLATED control electronics for single shaft applications

400i FULLY ISOLATED control electronics allows interfacing with other systems

Refer to features chart for further details or download product manual for full specification.

## 400/400i KEY FEATURES

Output signals for easy display of motor speed and load

Switch selectable feedback calibration - no component changes

Precision tach rectifier

Zero speed signal output

Motor overload output

Remote stop/start input

User adjustable:

- Acceleration
- Deceleration
- Max motor speed
- Min motor speed
- Max motor current
- Stability
- IR comp

Motor overload output

Output signals for easy display of motor speed and load

Zero speed signal output

Switch selectable feedback calibration - no component changes

Adjustable IR compensation for improved AVF speed regulation

Adjustable stability control for optimum motor response

Easily interfaced with armature reversing module

## 800/1200 KEY FEATURES

**800 controller for DC motors rated up to 8 Amps**

**1200 controller for DC motors rated up to 12 Amps**

**International dual voltage supply compatibility**

**Single Quadrant operation**

**Extra 50% peak torque for rapid acceleration or shock loads**

**User adjustable:**

- Acceleration
- Deceleration
- Max motor speed
- Min motor speed
- IR comp
- Stability
- Max motor current

**Torque control input for basic winding or tension control, with overspeed limiting**

**Many additional input and output signals**

**Switch selectable Tach or armature voltage feedback**

**4-20mA and 0-20mA loop input option as standard**

**Easily interfaced with armature reversing module**

PRODUCT NAME

# 800 / 1200

Non Isolated

**800**  
1.1kW / 1.5HP  
**1200**  
1.8kW / 2.0HP

DESCRIPTION

Two models available in 8 Amp and 12 Amp versions allow an easy upgrade path for those applications requiring extra power.

Both models feature the Sprint Electric micro analog processor module providing all the extra features normally associated with expensive "high end" products.

Compact design results in savings in panel space and hence costs.

Robust screw terminals reflect the overall quality and reliability, with overall performance meeting even the most arduous of applications.

Careful design with switch selection of key functions make the 800 and 1200 controllers quick and easy to install.



MODEL COMPARISON

MODEL	AC SUPPLY RANGE	TYPICAL ARMATURE VOLTAGE	MAX CONTINUOUS ARMATURE CURRENT	NOMINAL POWER
800	100 to 130v	90v	8A	0.55kW (0.75HP)
	200 to 264v	180v	8A	1.1kW (1.5HP)
1200	100 to 130v	90v	12A	0.9kW (1.0HP)
	200 to 264v	180v	12A	2.0kW (2.0HP)

DIMENSIONS

H	130 mm
W	100 mm
D	70 mm

See parts list at back for low voltage supply options and fuses.

PRODUCT NAME

# 800 / 1200

Non Isolated

**800**  
1.1kW / 1.5HP  
**1200**  
1.8kW / 2.0HP

SPECIFICATION

**Control action:** Dual Loop Proportional + Integral

**Speed regulation:** 0.1% Tachogenerator  
2% Armature Voltage

**Armature:** 800, 8 Amps  
1200, 12 Amps continuous  
200v max

**Overload protection:** Extra 50% peak torque for 30 secs prior to stall trip operation

**Field output:** 0.5 Amps at 0.9 x AC supply voltage

**Customer presets:** Max speed: 12v-200v full scale feedback  
Min speed 0-30% of max speed  
Up ramp (Acceleration) 1-30 secs  
Down ramp (Deceleration) 1-30 secs  
Stability  
IR comp  
Max Armature current 0-100%

**Switches:** Feedback voltage - 4 ranges  
Torque or speed mode  
Tachogenerator or Armature Voltage feedback

**Inputs:** Speed  
Torque  
Auxiliary speed input  
Auxiliary inverted speed input for trims etc.  
Run command  
Tachogenerator  
4-20mA or 0-20mA  
Pushbutton stop/start input

**Outputs:** Speed  
Current  
Setpoint ramp  
+/- 12v/-24v rails  
Zero Speed relay driver  
Stall relay driver

Refer to features chart for further details or download product manual for full specification.

## 800/1200 KEY FEATURES

**Adjustable Stability control for optimum motor response**

**Integral AC supply fuse**

**Ultra stable potentiometer reference for optimum long term speed and torque stability**

**Output signals for easy display of motor speed and load**

**Zero reference interlock facility**

**Adjustable IR compensation for improved AVF speed regulation**

**Switch selectable feedback calibration - no component changes**

**Precision tach rectifier**

**Zero speed signal output**

**Motor overload output**

**Identical footprint for 8 or 12 Amp output**

**Remote stop/start input**

**Features Sprint Electric micro analog processor**

**Pushbutton input for electronic control of motor stop/start**

**Compact size, saves panel space and makes for easy retrofitting**

## 1600i/3200i KEY FEATURES

For DC motors up to 16 Amps

Fully isolated control electronics

On-board relay indicates zero speed and/or motor overload

Features Sprint Electric micro analog processor

Numerous inputs and outputs for complex system applications

PRODUCT NAME

# 1600i/3200i

1600i  
2.2kw  
3200i  
2.2kw to 11.0kw  
Fully Isolated

DESCRIPTION

Designed to give the customer the choice.

The 1600i includes an extensive specification with quality, value for money and reliability assured.

For even higher powers and AC supply voltages. The 3200i is available up to 48 Amps.

At a full 2.2kw output capability this compact design is easily integrated and provides unparalleled performance.



1600i



3200i

Extra 50% peak torque for rapid acceleration or shock loads

User adjustable:

- Acceleration
- Deceleration
- Max motor speed
- Min motor speed
- IR comp
- Stability
- Max motor current

Switch selectable power up inhibit

MODEL COMPARISON

MODEL	AC SUPPLY RANGE	TYPICAL ARMATURE VOLTAGE	MAX CONTINUOUS ARMATURE CURRENT	NOMINAL POWER
1600i	100 to 130v	90v	16A	1.1kw (1.5HP)
	200 to 264v	180v	16A	2.2kw (3HP)
3200i/8	200 to 264v	180v	8A	1.1kw (1.5HP)
	360 to 440v	320v	8A	2.2kw (3HP)
3200i/16	200 to 264v	180v	16A	2.2kw (3HP)
	360 to 440v	320v	16A	4.0kw (5.3HP)
3200i/32	200 to 264v	180v	32A	4.5kw (6.0HP)
	360 to 440v	320v	32A	7.5kw (10.0HP)
3200i/48	200 to 264v	180v	48A	7.0kw (10.0HP)
	360 to 440v	320v	48A	11.0kw (14.6HP)

DIMENSIONS 1600i

H 150 mm
W 150 mm
D 90 mm

3200i

H 150 mm
W 200 mm
D 110 mm

See parts list at back for low voltage supply options and fuses.

PRODUCT NAME

# 1600i/3200i

1600i  
2.2kw  
3200i  
2.2kw to 11.0kw  
Fully Isolated

SPECIFICATION

Control action:	Dual loop Proportional + Integral
Speed regulation:	0.1% Tachogenerator 2% Armature voltage feedback
Armature:	1600i, 16 Amps continuous 3200i, 32 Amps at 0.9 x AC supply voltage
Overload protection:	Extra 50% peak torque for 30 secs prior to stall trip operation
Field output:	1 Amp at 0.9 x AC supply voltage
Customer presets:	Max speed: 25v - 400v full scale feedback Min speed 0 to 30% of max speed Up ramp (Acceleration) 1-30 secs Down ramp (Deceleration) 1-30 secs Stability IR comp Max armature current 0-100%
Switches:	Maximum current - 4 ranges Feedback voltage - 4 ranges Relay function - zero speed and/or stall Power-up Inhibit Tach/AVF selection
Inputs:	Speed Torque 4-20mA and 0-20mA Auxiliary speed inputs +ve and -ve Drive Run Tachogenerator Pushbutton stop/start
Outputs:	Speed Current Setpoint Ramp Total Demand Zero speed and stall relay driver +/-12v, +/- 24v rails
Relay:	Volt free change over contacts for zero speed and/or stall
Other features:	Overspeed limit Over torque limit Inverse time overload 50% stall threshold Phase angle clamp Precision Reference Precision tach rectifier

Refer to features chart for further details or download product manual for full specification.

## 1600i/3200i KEY FEATURES

Switch selectable feedback calibration - no component changes

Switched maximum current ranges for easy matching to motor current rating

Switch selectable drive relay functions

Ultra stable potentiometer reference for optimum long term speed and torque stability

Adjustable Stability control for optimum motor response

Switch selectable Tach or armature voltage feedback

Torque control input for basic winding or tension control, with overspeed limiting

International dual voltage supply compatibility

4-20mA and 0-20mA loop input option as standard

Output signals for easy display of motor speed and load

Compact size, saves panel space and makes for easy retrofitting

Zero reference interlock facility

Single Quadrant operation

Adjustable IR compensation for improved AVF speed regulation

Precision tach rectifier

## 3600XRi KEY FEATURES

**Four Quadrant forward, reverse and braking operation**

**Five current outputs**  
- 4 Amp  
- 8 Amp  
- 16 Amp  
- 32 Amp  
- 36 Amp

**Extra 50% peak torque for rapid acceleration or shock load**

**Fully regenerative - no braking energy dissipated as waste heat**

**Isolated control electronics for easy connection to other drives/equipment**

**Extremely compact size, saves panel space and makes for easy retrofitting**

**User adjustable presets for:**

- Forward acceleration
- Reverse acceleration
- Forward deceleration
- Reverse deceleration
- Max motor speed
- Min motor speed
- Motor current limit
- Brake current limit
- Forward current limit
- Reverse current limit
- Positive current limit
- Negative current limit
- IR comp
- Stability

**4Q torque input**

**2Q torque input**

**Regen to zero input**

PRODUCT NAME

# 3600XRi

Fully Isolated

0.55kw to 9.5kw

DESCRIPTION

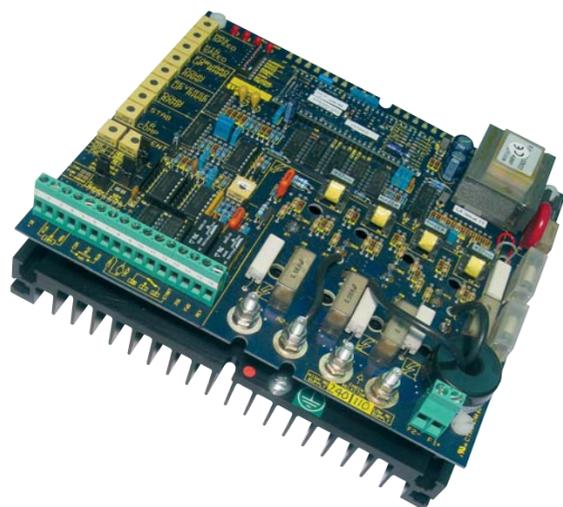
A four quadrant regenerative drive providing motoring and braking in both directions of rotation.

The regenerative ability is fully rated on a continuous basis with braking energy efficiently returned to the AC supply.

This feature sets the 3600XRi apart from AC inverter or vector drives where wasted energy is dissipated in costly resistor banks.

The 3600XRi is designed to meet the most demanding of process line applications where both loads and speeds vary in each direction.

Quality and reliability are assured by the use of advanced manufacturing and testing technologies.



MODEL COMPARISON

MODEL	AC SUPPLY RANGE	TYPICAL ARMATURE VOLTAGE	MAX CONTINUOUS ARMATURE CURRENT	NOMINAL POWER
3600XRi/4/LN	100 to 130v 200 to 264v	90v 180v	4A	0.25kw (0.4HP) 0.55kw (0.75HP)
3600XRi/8/LN			8A	0.55kw (0.75HP) 1.1kw (1.5HP)
3600XRi/16/LN			16A	1.1kw (1.5HP) 2.2kw (3.0HP)
3600XRi/16/LL	200 to 264v 360 to 440v	180v 320v	16A	2.2kw (3.0HP) 4.0kw (5.3HP)
3600XRi/32/LL			32A	5.0kw (6.6HP) 7.5kw (10HP)
3600XRi/36/LL			36A	5.5kw (7HP) 9.5kw (12.6HP)

DIMENSIONS

H	175 mm
W	200 mm
D	70 mm 36 Amp model 90 mm

See parts list at back for low voltage supply options and fuses.

PRODUCT NAME

# 3600XRi

Fully Isolated

0.55kw to 9.5kw

SPECIFICATION

Control action:	Dual loop Proportional and Integral
Speed regulation:	0.1% Tachogenerator 2% Armature voltage feedback
Armature:	Six models: 4, 8, 16, 32 and 36 Amps continuous
Overload protection:	Extra 50% peak torque for 30 secs prior to stall trip operation
Field output:	2 Amps at 0.9 x AC supply voltage
Customer presets:	Max speed: 25v - 400v full Scale feedback Min speed 0 to 30% of max speed Up ramp (Acceleration) 1-30 secs Down ramp (Deceleration) 1-30 secs Independent up/down ramp adjustment for forward and reverse direction Stability IR comp Multi option current limit
Switches:	Maximum current - 4 ranges Feedback voltage - 4 ranges Relay function - zero speed and/or stall and/or overload Tach/AVF selection
Inputs:	Speed 2Q/4Q Torque Auxiliary speed inputs +ve and -ve 4-20mA and 0-20mA Drive run Tachogenerator Fast quench Pushbutton stop/start, fwd/rev Regen to zero Jog Direct speed
Outputs:	Speed Current (bipolar & rectified) Setpoint Ramp Total Demand Zero speed and stall relay driver Overload timer relay driver +/-12v, +/- 24v rails
Relay:	Volt free change over contacts for zero speed or stall
Other features:	Overspeed limit Over torque limit Inverse time overload 50% stall threshold Precision Reference Dual setpoint

Refer to features chart for further details or download product manual for full specification.

## 3600XRi KEY FEATURES

**Features Sprint Electric micro analog processor**

**Direct pushbutton inputs for control of stop/start, direction and jog functions**

**Includes all the features of 1600i and 3200i**

**Relay output indicates motor shaft reversal**

**Relay output indicates motor load > 105%**

**Dual setpoint facility for alternate speed e.g. run and crawl toggled speed reference ideal for easy end of travel reversal**

**Switch selectable Tach or Armature voltage feedback**

**Switched maximum current ranges for easy matching to motor current rating**

**Ultra stable potentiometer reference for optimum long term speed and torque stability**

**International dual voltage supply compatibility**

**On-board relay indicates zero speed and/or motor overload**

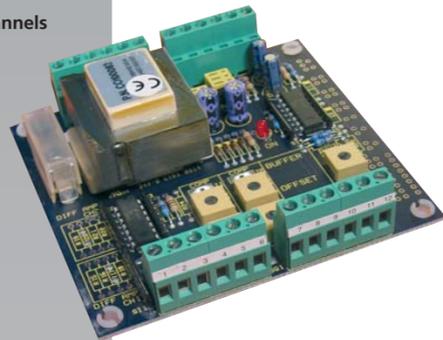
# BUFFER

Versatile analog system signal blocks

Ideal for systems applications

Five independent channels

Mains powered



## BUFFER CARD

The buffer card is a compact self-powered interface product for signal processing and amplification. The card has 5 independent channels with a large variety of uses, e.g multi setpoint systems, closed loop control, field weakening processor, signal buffering.

**CHANNELS 1 AND 2.** High accuracy differential amplifier with adjustable gain. Uses include inverting, non-inverting, amplification, attenuation, buffering, rectifying, filtering, load cell amplifier etc.

**CHANNELS 3 AND 4.** High accuracy summing amplifier

with variable gain, voltage input and zero offset adjustment. Uses include summing, scaling, amplification, subtraction, clamping, comparator, integrator, buffering etc.

**CHANNEL 5.** Linear ramp with variable ramp rate and ramp reset input.

All channels are short circuit protected and can drive upto 10, 10K pots with + or - signals. Also included is a precision power supply with +/-12v and +/-24v outputs, the unit can be powered from 110/240v AC supplies.

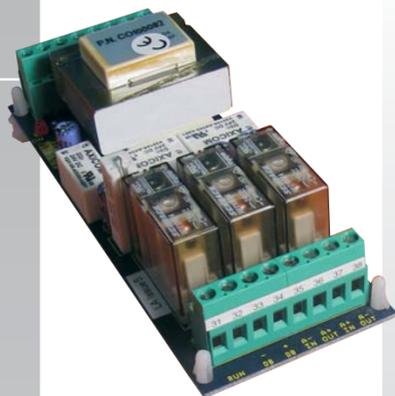
# REV UNIT

Designed for use with Sprint 400, 800 and 1200 drives

Robust design for safe reversal from any speed

No additional contactors or relays required

Suitable for any armature voltage up to 180v DC



## REVERSING UNIT

This compact unit allows for the safe reversal of DC Motors with armature currents up to 12 Amps. The card possesses all the necessary logic and unlike other available units, all the contactors for reversing and

dynamic braking are integral to the unit.

For currents higher than 12 Amps the unit is easily interface with external power contactors.

# DPM

Available in two versions 3 1/2 and 4 1/2 digit

Specifically designed for use with drives

Quick and easy to calibrate in any engineering units

Mains powered

Simple slide-in legend facility for process variable



## DIGITAL PANEL METERS

A range of digital panel meters contained within a DIN size case.

**DPM35S.** Three and a half digit panel meter. Features include slide in legend, plug-in screw terminals, display hold, 110/240v AC supply. Display is 14mm red LED with range +/- 1999 and selectable decimal point. The unit is scaleable in engineering units via customer accessible multirun preset. Any full

scale voltage from +/-5v to +/-200v can be adjusted to read any display number. Customer accessible offset control. Full ratio facility with automatic "out of limits", 4-20mA loop input facility. Range adjustment to 100mV and an AC voltage measurement input facility.

**DPM35SD.** A four and a half digit version of the DPM35S with display reading to +/-19990. All other features included.

PRODUCT NAME

# ENCLOSURES

Non Isolated

0.37kw to 1.8kw

## SPECIFICATION

DESCRIPTION

Seven drive models available in high quality aluminium enclosures.

From 0.37kw to 1.8kw in either forward (E) only or reversing (ER) variants. Features include IP40 protection, Mains on/off switch, dual voltage supply, fully fused, zero speed interlocked reversing, dynamic braking, set speed potentiometer with graduated scale.

These enclosures contain the Sprint Electric 370, 400, 800 and 1200 controllers already renowned for their extensive specification and versatility.

Controls:

- On/Off AC supply rocker switch
- Set speed potentiometer
- AC supply fuse
- 400ER, 800ER, 1200ER: toggle switch for forward, stop and reverse



370E/400E/800E/1200E

400ER/800ER/1200ER



## MODEL COMPARISON

MODEL	AC SUPPLY RANGE	TYPICAL ARMATURE VOLTAGE	MAX CONTINUOUS ARMATURE CURRENT	NOMINAL POWER
370E	110/240v	90/180v	3.7A	0.25kw/0.55kw
400E			4A	0.25kw/0.55kw
800E			8A	0.55kw/1.1kw
1200E			12A	0.9kw/1.8kw
400ER			4A	0.25kw/0.55kw
800ER			8A	0.55kw/1.1kw
1200ER			12A	0.9kw/1.8kw

## DIMENSIONS

H	250 mm
W	175 mm
D	100 mm

See parts list at back for low voltage supply options and fuses. Refer to features chart for further details or download product manual for full specification.

## 200XLV KEY FEATURES

- Motors and brakes in both directions
- Ideal for small DC motors and linear actuators up to 48v
- Fast response
- Panel or DIN rail mounting
- +/- 2A output, with 150% overload capability
- Single polarity supply with wide supply voltage range up to 48v
- Suitable for battery or standard unregulated DC supply
- Precision references for ultra stable operation
- +ve and -ve differential speed inputs
- Built in thermal protection with resettable trip
- Current limit protection
- 3 term PID control action
- Armature or tach feedback operation
- Position control facility
- Setpoint ramp facility
- Plug on screw terminals for easy wiring
- Adjustable IR compensation for improved AVF speed regulation
- CE marked with excellent EMC compliance
- Comprehensive manual with multi-applications data
- High bandwidth with superbly linear output
- Accepts bipolar or unipolar command inputs
- Direction control by switch or centre zero pot
- Easily interfaced for limit switch operation
- Ideal for low inductance, printed motors

PRODUCT NAME

# 200XLV

DESCRIPTION

The 200XLV is a fast response, linear DC motor speed controller for driving small low voltage brushed DC motors.

Ideal for positioning and servo type applications.

The 200XLV will motor and brake in both directions of rotation and operates from a single polarity supply, either battery or unregulated DC Source.

Excellent performance allows the 200XLV to meet the most demanding of applications. The extensive specification includes many

standard features not normally associated with a drive the size and cost of the 200XLV.

The compact design has plug in screw terminals and provision for back panel or DIN rail mounting.

The 200XLV is fully EMC compliant and CE marked.



Due to its linear control circuits and linear output stage, this drive is ideal for applications with other highly sensitive low immunity circuits.

PRODUCT NAME

PART

PART NO.

## SINGLE PHASE 1Q DC CONTROLLERS - NON ISOLATED

340



0.55KW 3.4A 240/110Vac 1Q Non Isolated

Controller	340
30/60V AC supply input version	340LV60
Semiconductor Fuse 6 x 32	CH00620A
Fuseholder 6 x 32	CP102071
DIN Rail Clip for Fuseholder	FE101969
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN16

680



0.75KW 6.8A 240/110Vac 1Q Non Isolated

Controller	680
30/60V AC supply input version	680LV60
Semiconductor Fuse 6 x 32	CH00620A
Fuseholder 6 x 32	CP102071
DIN Rail Clip for Fuseholder	FE101969
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN16

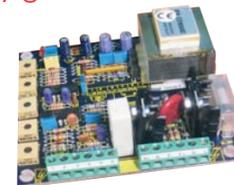
1220



1.8KW 12.2A 240/110Vac 1Q Non Isolated

Controller	1220
30/60V AC supply input version	1220LV60
Semiconductor Fuse 6 x 32	CH00620A
Fuseholder 6 x 32	CP102071
DIN Rail Clip for Fuseholder	FE101969
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN16

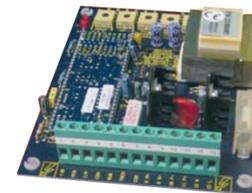
370



0.55KW 3.7A 240/110Vac 1Q Non Isolated

Controller	370
30/60V AC supply input version	370LV60
Semiconductor Fuse 6 x 32	CH00608A
Fuseholder 6 x 32	CP102071
DIN Rail Clip for Fuseholder	FE101969
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN16

400



0.55KW 4A 240/110Vac 1Q Non Isolated

Controller	400
30/60V AC supply input version	400LV60
Semiconductor Fuse 6 x 32	CH00608A
Fuseholder 6 x 32	CP102071
DIN Rail Clip for Fuseholder	FE101969
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN16

Please refer to website for further information or product technical manual for full specification.

PRODUCT NAME

PART

PART NO.

800



1.1KW 8A 240/110Vac 1Q Non Isolated

Controller	800
30/60V AC supply input version	800LV60
Semiconductor Fuse 6 x 32	CH00612A
Fuseholder 6 x 32	CP102071
DIN Rail Clip for Fuseholder	FE101969
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN16

1200



1.8KW 12A 240/110Vac 1Q Non Isolated

Controller	1200
30/60V AC supply input version	1200LV60
Semiconductor Fuse 6 x 32	CH00620A
Fuseholder 6 x 32	CP102071
DIN Rail Clip for Fuseholder	FE101969
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN16
KW ratings shown are at highest supply voltage.	

SINGLE PHASE 1Q DC CONTROLLERS - ISOLATED

340i



0.55KW 3.4A 240/110Vac 1Q Isolated

Controller	340i
30/60V AC supply input version	340iLV60
Semiconductor Fuse 6 x 32	CH00620A
Fuseholder 6 x 32	CP102071
DIN Rail Clip for Fuseholder	FE101969
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN16

680i



0.75kw 6.8A 240/110Vac 1Q Isolated

Controller	680i
30/60V AC supply input version	680iLV60
Semiconductor Fuse 6 x 32	CH00620A
Fuseholder 6 x 32	CP102071
DIN Rail Clip for Fuseholder	FE101969
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN16

1220i



1.8KW 12.2A 240/110Vac 1Q Isolated

Controller	1220i
30/60V AC supply input version	1220iLV60
Semiconductor Fuse 6 x 32	CH00620A
Fuseholder 6 x 32	CP102071
DIN Rail Clip for Fuseholder	FE101969
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN16

Please refer to website for further information or product technical manual for full specification.

PRODUCT NAME

PART

PART NO.

400i



0.55KW 4A 240/110Vac 1Q Isolated

Controller	400i
30/60V AC supply input version	400iLV60
Semiconductor Fuse 6 x 32	CH00608A
Fuseholder 6 x 32	CP102071
DIN Rail Clip for Fuseholder	FE101969
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN16

1600i



2.2KW 16A 240/110Vac 1Q Isolated

Controller	1600i
30/60V AC supply input version	1600iLV60
Semiconductor Fuse 14 x 51	CH00730A
Fuseholder 14 x 51	CP102053
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN16

3200i/8



2.2KW 8A 415/240Vac 1Q Isolated

Controller	3200i/8
30/60V AC supply input version	3200i/8LV60
Semiconductor Fuse 6 x 32*	CH00612A
Fuseholder 6 x 32*	CP102071
DIN Rail Clip for Fuseholder*	FE101969
Pot kit including graduated dial & knob	POTKIT
Filter (240V operation, if required)	FRLN16
Filter (415V operation, if required)	FRLN16
* Note: Two fuses & holders etc. required for 415V Line to Line operation.	

3200i/16



4KW 16A 415/240Vac 1Q Isolated

Controller	3200i/16
30/60V AC supply input version	3200i/16LV60
Semiconductor Fuse 14 x 51*	CH00730A
Fuseholder 14 x 51*	CP102053
Pot kit including graduated dial & knob	POTKIT
Filter (240V operation, if required)	FRLN16
Filter (415V operation, if required)	FRLN16
* Note: Two fuses & holders required for 415V Line to Line operation.	

3200i/32



7.5KW 32A 415/240Vac 1Q Isolated

Controller	3200i/32
30/60V AC supply input version	3200i/32LV60
Semiconductor Fuse Size 000*	CH00850A
Fuseholder Size 000*	CP102054
Pot kit including graduated dial & knob	POTKIT
Filter (if required)	FRLN36
* Note: Two fuses & holders required for 415V Line to Line operation.	

Please refer to website for further information or product technical manual for full specification.

PRODUCT NAME	PART	PART NO.
<b>3200i/48</b>	11kW 48A 415/240Vac 1Q Isolated	
	Controller	3200i/48
	30/60V AC supply input version	3200i/48LV60
	Semiconductor Fuse Size 000*	CH00880A
	Fuseholder Size 000*	CP102054
	Pot kit including graduated dial & knob	POTKIT
	Filter (if required)	FRL150
	* Note: Two fuses & holders required for 415V Line to Line operation.	

SINGLE PHASE 4Q DC CONTROLLERS - ISOLATED, FULLY REGENERATIVE

<b>340XRi</b>	0.55kW 3.4A 240/110Vac 4Q Regen Isolated	
	Controller	340XRi
	30/60V AC supply input version	340XRiLV60
	Semiconductor Fuse 6 x 32	CH00620A
	Fuseholder 6 x 32	CP102071
	DIN Rail Clip for Fuseholder	FE101969
	Pot kit including graduated dial & knob	POTKIT
	Filter (if required)	FRLN16

<b>680XRi</b>	0.75KW 6.8A 240/110Vac 4Q Regen Isolated	
	Controller	680XRi
	30/60V AC supply input version	680XRiLV60
	Semiconductor Fuse 6 x 32	CH00620A
	Fuseholder 6 x 32	CP102071
	DIN Rail Clip for Fuseholder	FE101969
	Pot kit including graduated dial & knob	POTKIT
	Filter (if required)	FRLN16

<b>1220XRi</b>	1.8KW 12.2A 240/110Vac 4Q Regen Isolated	
	Controller	1220XRi
	30/60V AC supply input version	1220XRiLV60
	Semiconductor Fuse 6 x 32	CH00620A
	Fuseholder 6 x 32	CP102071
	DIN Rail Clip for Fuseholder	FE101969
	Pot kit including graduated dial & knob	POTKIT
	Filter (if required)	FRLN16

Please refer to website for further information or product technical manual for full specification.

PRODUCT NAME	PART	PART NO.
<b>3600XRi/4</b>	0.55KW 4A 240/110Vac 4Q Regen Isolated	
	Controller	3600XRi/4/LN
	30/60V AC supply input version	3600XRi/4/LV60
	Filter	FRLN16
	Semiconductor Fuse 6 x 32	CH00608A
	Fuseholder 6 x 32	CP102071
	DIN Rail Clip for Fuseholder	FE101969
	Pot kit including graduated dial & knob	POTKIT

<b>3600XRi/8</b>	1.1KW 8A 240/110Vac 4Q Regen Isolated	
	Controller	3600XRi/8/LN
	30/60V AC supply input version	3600XRi/8/LV60
	Filter	FRLN16
	Semiconductor Fuse 6 x 32	CH00620A
	Fuseholder 6 x 32	CP102071
	DIN Rail Clip for Fuseholder	FE101969
	Pot kit including graduated dial & knob	POTKIT

<b>3600XRi/16</b>	2.2KW 16A 240/110Vac 4Q Regen Isolated	
	Controller	3600XRi/16/LN
	30/60V AC supply input version	3600XRi/16/LV60
	Filter	FRLN16
	Semiconductor Fuse 14 x 51	CH00730A
	Fuseholder 14 x 51	CP102053
	Pot kit including graduated dial & knob	POTKIT

<b>3600XRi/16</b>	4KW 16A 415/240Vac 4Q Regen Isolated	
	Controller	3600XRi/16/LL
	Filter	FRL16
	Semiconductor Fuse 14 x 51*	CH00730A
	Fuseholder 14 x 51*	CP102053
	Pot kit including graduated dial & knob	POTKIT
	* Note: Two fuses & holders required for 415V Line to Line operation.	

<b>3600XRi/32</b>	7.5KW 32A 415/240Vac 4Q Regen Isolated	
	Controller	3600XRi/32/LL
	30/60V AC supply input version	3600XRi/32/LV60
	Filter	FRL36
	Semiconductor Fuse Size 000*	CH00850A
	Fuseholder Size 000*	CP102054
	Pot kit including graduated dial & knob	POTKIT
	* Note: Two fuses & holders required for 415V Line to Line operation.	

<b>3600XRi/36</b>	9.5KW 36A 415/240Vac 4Q Regen Isolated	
	Controller	3600XRi/36/LL
	30/60V AC supply input version	3600XRi/36/LV60
	Filter	FRL36
	Semiconductor Fuse Size 000*	CH00850A
	Fuseholder Size 000*	CP102054
	Pot kit including graduated dial & knob	POTKIT
	* Note: Two fuses & holders required for 415V Line to Line operation.	

KW ratings shown are at high supply voltage.

Please refer to website for further information or product technical manual for full specification.

# THE SPRINT ELECTRIC ADVANTAGE

## PANEL MOUNTING OPTIONS

## DIN RAIL OPTIONS

### GENERAL SPECIFICATION

		370	400	800	1200	400i	1600i	3200i	3600XRi	340/680/1220	340i/680i/1220i	340XRi/680XRi/1220XRi
<b>Motor power, KW</b>	Nominal motor power, dependant on motor armature voltage.	KW 0.37	0.55	1.1	1.8	0.55	2.2	1.1 to 11	0.55 to 9.55	0.55/0.75/1.8	0.55/0.75/1.8	0.55/0.75/1.8
<b>Motor armature current</b>	Maximum continuous armature current. Check model specification for precise rating.	A 3.7	4	8	12	4	16	8 to 48	4 to 36	3.4/6.8/12.2	3.4/6.8/12.2	3.4/6.8/12.2
<b>AC supply voltage (Nominal)</b>	110V AC.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>(Refer to specifications for precise details of AC supply voltage options)</b>	240V AC.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	380V AC.							✓	✓			
	415V AC.							✓	✓			
	480V AC.							✓	✓			
<b>Special AC input voltages</b>	Refer to supplier.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Single quadrant operation</b>	Drives motor in single direction.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Two quadrant operation</b>	Drives motor in single direction.										✓	
<b>Regenerative stopping</b>	Whilst stopping, braking energy is regenerated into AC supply for high energy efficiency.								✓			✓
<b>Four quadrant operation</b>	Drives and brakes motor in Forward and Reverse direction. Braking energy regenerated into AC supply for high energy efficiency.								✓			✓
<b>Isolated control electronics</b>	Allows direct connection to other isolated drives or external equipment.					✓	✓	✓	✓		✓	✓
<b>Made in Britain</b>	British design and manufacture to highest standards for excellent quality and reliability.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Compact Size</b>	Save space as well as cost. Makes for easy retrofitting.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Worldwide availability</b>	Extensive overseas sales and support.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Available from stock</b>	All products available from stock.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Micro analog processor</b>	High accuracy processor is at the heart of the drive, with systems style features and optimised dynamics. The ultimate combination of performance & reliability.			✓	✓	✓	✓	✓	✓			

### ADJUSTABLE PARAMETERS

<b>Max speed preset</b>	Sets the fastest running speed of the motor.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Min speed preset</b>	Sets the slowest running speed of the motor. Adjustable from zero.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Jog speed preset</b>	On-board customer preset for alternative speed reference.											
<b>Zero speed preset</b>	Allows fine adjustment at very low speeds.											
<b>Up ramp preset</b>	Sets the rate of motor acceleration. Adjustable between 1 and 30 seconds (20 seconds Model 370).	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Down ramp preset</b>	Sets the rate of motor deceleration. Adjustable between 1 and 30 seconds.		✓	✓	✓	✓	✓	✓	✓		✓	✓
<b>Independent fwd/ rev ramp presets</b>	Independent setting of motor acceleration and deceleration rates (Forward up, Forward down, Reverse up, Reverse down).								✓			
<b>Max current preset</b>	Sets maximum motor torque and protects against accidental motor overload.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Motor current limit preset</b>	Sets the maximum driving torque in both shaft directions.								✓			
<b>Brake current limit preset</b>	Sets the maximum braking torque in both shaft directions.								✓			
<b>Forward current limit preset</b>	Sets the maximum driving and braking torque in the forward shaft direction.								✓			
<b>Reverse current limit preset</b>	Sets the maximum driving and braking torque in the reverse shaft direction.								✓			
<b>Positive current limit preset</b>	Sets the maximum driving torque in the forward direction and maximum braking torque in the reverse direction.								✓			
<b>Negative current limit preset</b>	Sets the maximum braking torque in the forward direction and the maximum driving torque in the reverse direction.								✓			
<b>Stability preset</b>	Optimises drive stability and response.	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
<b>IR Comp preset</b>	Improves speed regulation when using Armature voltage feedback.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

### DRIVE SIGNAL INPUTS

		370	400	800	1200	400i	1600i	3200i	3600XRi	340/680/1220	340i/680i/1220i	340XRi/680XRi/1220XRi
<b>Main speed input</b>	Main speed set point input to drive.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Direct speed input</b>	This +/-10V input may be used for immediate unramped speed changes. It is added to the ramped speed setpoint.	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
<b>Auxiliary negative speed input</b>	+/- 10V input, subtracts from main speed setpoint.		✓	✓	✓	✓	✓	✓	✓			
<b>Auxiliary positive speed input</b>	+/- 10V input, adds to main speed setpoint.		✓	✓	✓	✓	✓	✓	✓			✓
<b>4 - 20mA loop input</b>	For industry standard remote control of drive speed.		✓	✓	✓	✓	✓	✓	✓			
<b>0 - 20mA loop input</b>	For industry standard remote control of drive speed.		✓	✓	✓	✓	✓	✓	✓			
<b>Torque input</b>	Allows drive to control torque instead of speed for winding or tension control applications.		✓	✓	✓	✓	✓	✓	✓		✓	✓
<b>4Q torque input</b>	Allows control of torque instead of speed when driving or braking in either direction.								✓			✓
<b>2Q torque input</b>	Allows control of torque instead of speed when driving forward or braking in reverse.								✓			
<b>Field current input</b>	Allows external control of motor field current. Ideal for constant horsepower applications.											
<b>Drive run input</b>	Remote Stop / Start input from external contact or PLC etc.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Fast quench input</b>	Provides immediate electronic shutdown. The motor will coast to rest.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Regen to zero input</b>	Causes immediate braking at torque limit until motor stops.								✓			✓
<b>Motor temperature alarm input</b>	Immediate latched drive shutdown in the event of motor over temperature, with LED indication.											
<b>Alarm reset input</b>	Allows external signal to reset field loss, tacho loss or motor temperature alarms.											
<b>Aux trip input</b>	Latched input providing immediate drive shutdown, with LED indication.											
<b>Direct pushbutton inputs</b>	Direct inputs for Forward, Reverse, Stop / Start and Jog without the use of additional relays.								✓		✓	✓
<b>Pushbutton start input</b>	Allows choice of start command from either momentary or maintained contacts.								✓			
<b>Electronic contactor input</b>	Pushbutton input for electronic control of motor stop / start.		✓	✓	✓	✓	✓	✓	✓			
<b>PLC compatible inputs</b>	All drive control inputs are referred to isolated 0V for easy implementation of stop/start, forward/reverse etc. where applicable.					✓	✓	✓	✓		✓	✓

### DRIVE SIGNAL OUTPUTS

<b>Speed output</b>	Provides easy display of motor speed when used in conjunction with panel meters (e.g. Sprint DPM355).		✓	✓	✓	✓	✓	✓	✓		✓	✓
<b>Armature current output</b>	Voltage output signal proportional to motor armature current. Ideal for use with panel meters (e.g. Sprint DPM355). Also used in load sharing applications.		✓	✓	✓	✓	✓	✓	✓		✓	✓
<b>Rectified armature current output</b>	Available rectified or bipolar for use with end zero or centre zero meters.								✓			
<b>Setpoint ramp output</b>	Ideal for master reference to control the acceleration of follower drives in multi motor applications.		✓	✓	✓	✓	✓	✓	✓		✓	✓
<b>Ramp connect mode</b>	Allows the speed demand ramp to be re-routed via external systems.											
<b>Total demand output</b>	The sum of all setpoint inputs, for more complex follower applications.					✓	✓	✓	✓		✓	✓
<b>Current demand output</b>	Voltage output signal representing torque required to maintain speed.						✓	✓	✓			
<b>Armature voltage output</b>	Output signal proportional to motor armature voltage. Ideal for calculation of motor power.											
<b>Field current output</b>	Voltage output signal proportional to motor field current.											
<b>Remote alarm outputs</b>	Provides external indication of alarm status.										✓	✓

### DRIVE POWER OUTPUTS

<b>150% overload capability</b>	Extra 50% peak torque for 30 seconds prior to stall trip operation. Ideal for rapid acceleration, shock loads etc.		✓	✓	✓	✓	✓	✓	✓			
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	370	400	800	1200	400i	1600i	3200i	3600XRi	340/680/1220	340i/680i/1220i	340XRi/680XRi/1220XRi
<b>Field output</b>	Used for field excitation of shunt wound motors.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Half wave field facility</b>	Allows field voltage output to be either 0.9 x AC input or 0.4 x AC input.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Delayed field quench</b>	The motor field output is maintained for 15 seconds after the contactor is de-energised to enable dynamic braking.										
<b>Economy field facility</b>	The field output is automatically reduced to 40% 15 seconds after the main contactor is de-energised. Used to keep motor temperature constant in cold climates.										
<b>Adjustable field output</b>	User can adjust the field output voltage to match any motor.										
<b>+24V output</b>	For customer use. 25mA max. Unregulated.					✓	✓	✓			
<b>-12V / + 12V output</b>	For customer use. 10mA max. Regulated.	✓	✓	✓	✓	✓	✓	✓			
<b>-24V output</b>	For customer use. 25mA max. Unregulated.	✓	✓	✓	✓	✓	✓	✓			

**RELAYS AND RELAY DRIVERS**

<b>Stall relay</b>	Volt free contacts that change over if the internal overload trip has operated to protect the motor (see Stall Lamp).					✓	✓	✓			
<b>Stall relay driver</b>	Signals that the internal overload trip has operated to protect the motor. Used to drive an external signal relay.		✓	✓	✓	✓	✓	✓		✓	✓
<b>Zero speed relay</b>	Volt free contacts that change over when the motor is at, or near, zero speed. Ideal for armature reversal/brake control applications.					✓	✓	✓			
<b>Zero speed relay driver</b>	Signals that the motor is at, or near, zero speed. Ideal for armature reversal/brake control applications. Used to drive an external signal relay.		✓	✓	✓	✓	✓	✓		✓	✓
<b>Shaft reverse relay</b>	Volt free relay contacts indicate zero speed or reverse shaft direction. Ideal for direction dependant speed selection.							✓			
<b>Shaft reverse relay driver</b>	Signals zero speed or reverse shaft direction. Ideal for direction dependant speed selection. Used to drive an external signal relay.							✓			
<b>Timer relay</b>	Volt free relay contacts indicate that the motor load is above 105% and that the stall timer is operational.							✓			
<b>Timer relay driver</b>	Signals that the motor load is above 105% and that the stall timer is operational. Used to drive an external signal relay.							✓			

**SWITCH AND JUMPER SELECTABLE FUNCTIONS**

<b>Switched speed ranges</b>	Allows easy matching of drive output to motor or tacho voltage rating.		✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Switched current ranges</b>	Allows easy matching of drive output to motor current rating.					✓	✓	✓			
<b>Switched relay functions</b>	Selection of on-board relay function.					✓	✓	✓			
<b>Switched power up inhibit</b>	Prevents motor restarting after loss of mains supply.					✓	✓	✓			
<b>Switched tacho/AVF mode</b>	Easy selection of Tacho or Armature voltage feedback.		✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Switched field weakening mode</b>	Allows selection between field weakening and regulated field mode.										
<b>AC supply selection jumper</b>	Easy selection of AC supply voltage.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Zero speed quench jumper</b>	Prevents motor shaft creep at zero setpoint.							✓			
<b>1 second quench jumper</b>	Causes immediate braking for 1 second at torque limit, followed by electronic shutdown.							✓			
<b>Ramp to zero function</b>	Pushbutton input for controlled deceleration to stop (1-30 secs). Regenerating if necessary.							✓			

**DRIVE ALARMS, PROTECTION AND INDICATORS**

	370	400	800	1200	400i	1600i	3200i	3600XRi	340/680/1220	340i/680i/1220i	340XRi/680XRi/1220XRi
<b>Drive healthy output</b>	Relay drive signal to show that drive is ready to go.										
<b>Field loss alarm</b>	Immediate latched drive shutdown in the event of loss of field current, with LED indication.										
<b>Tacho loss alarm</b>	Immediate latched drive shutdown in the event of tacho loss. LED indication.										
<b>Peak current alarm</b>	Immediate latched drive shutdown in the event of excessive armature fault current. LED indication.										
<b>Motor temperature alarm</b>	Immediate latched drive shutdown in the event of motor over temperature. LED indication.										
<b>Aux trip alarm</b>	Latched input providing immediate drive shutdown. LED indication.										
<b>Drive thermal alarm</b>	Immediate latched drive shutdown in the event of inadequate Drive ventilation. LED indication.										
<b>Phase loss shutdown</b>	This function provides safe shutdown if any phase is lost.										
<b>Alarm defeat jumpers</b>	Allows individual override of alarms.										
<b>Overspeed limit</b>	Speed reference inputs remain active when operating in torque mode, thus allowing control of the overspeed limit.	✓	✓	✓	✓	✓	✓	✓			
<b>Overtorque limit</b>	Torque reference inputs remain active when operating in speed mode, thus allowing control of the overtorque limit.	✓	✓	✓	✓	✓	✓	✓			
<b>Zero reference interlock</b>	Facility to prevent drive starting unless speed reference is at zero. Ideal for extruders.		✓	✓	✓	✓	✓	✓			
<b>Stall timer warning</b>	Signal output warns that the motor load is above 105% and that the stall timer is operating. LED indication.							✓		✓	✓
<b>Inverse time overload</b>	Stall trip time automatically extends beyond 30 seconds for overloads less than 50%.		✓	✓	✓	✓	✓	✓		✓	✓
<b>50% stall threshold option</b>	Allows protection of smaller motors, whilst retaining the 150% controller peak output for short term overloads.		✓	✓	✓	✓	✓	✓			
<b>Integral line fuse</b>	AC Line fuse included as standard.	✓	✓	✓	✓	✓					
<b>Contactor control logic</b>	Ensures correct sequencing of power contactor control.										
<b>Phase angle clamp option</b>	Limits the maximum armature voltage if a low voltage motor is used.		✓	✓	✓	✓	✓	✓			
<b>ON lamp</b>	Indicates control electronics is powered up.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>STALL lamp</b>	Indicates that the internal drive trip has operated to protect the motor due to excessive load or incorrect calibration.		✓	✓	✓	✓	✓	✓		✓	✓
<b>Slave contact lamp</b>	LED indication that the main contactor slave relay is energised.										
<b>+/- current lamps</b>	Shows the sign of the armature current demand. Ideal for monitoring load stability and motor/brake operating mode during commissioning.							✓			✓
<b>Field voltage display</b>	Trend indication of field regulator output voltage.										

**SPEED CONTROL FEATURES**

<b>Precision reference</b>	Ultra stable 10V setpoint reference for optimum long term speed and torque stability.		✓	✓	✓	✓	✓	✓		✓	✓
<b>S-shaped ramps facility</b>	Allows the speed demand ramp to have a soft profile at start and end of speed change.										
<b>Precision tacho rectifier</b>	Prevents motor runaway due to incorrect tacho polarity. Provides motor reversal insensitivity. Senses tacho feedback accurately right down to zero speed.		✓	✓	✓	✓	✓	✓			
<b>Tacho feedback</b>	Allows high accuracy speed control when used with precision tachogenerator (typically 0.1%).	✓	✓	✓	✓	✓	✓	✓		✓	✓
<b>Speed derivative facility</b>	Allows extra fast response with tacho feedback.										
<b>Low voltage tacho facility</b>	Allows use of tacho with low voltage output.	✓	✓	✓	✓	✓	✓	✓			
<b>Armature voltage feedback</b>	Built-in feature provides cost free alternative to tachogenerator.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>High accuracy AVF</b>	Armature voltage feedback with field regulation approaches the performance of tacho feedback without the added cost.										
<b>Regulated field</b>	High accuracy control of motor field current provides excellent speed accuracy without the need for a tacho. Allows easy matching of drive.										
<b>Enhanced armature voltage range</b>	This special feature eliminates the reduction of armature voltage otherwise required for three phase regenerative drive applications. This reduces motor cost and standardises motor specification.										
<b>Built in field weakener</b>	Automatic control of motor field current allows higher than standard motor speed where mechanically permissible.										
<b>Toggled +/- 10V reference</b>	Dual polarity reference set by momentary contact inputs. Ideal for end of travel reversal etc.							✓		✓	✓
<b>Dual setpoint facility</b>	Allows pushbutton selection of two alternative speeds. e.g. Run and Crawl.							✓			
<b>Counter EMF winding facility</b>	Allows drive to become a power controller for specialist winding applications.										

**AC MAINS SUPPLY**

<b>International dual voltage supply</b>	Compatible with world-wide mains supply.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Low voltage version</b>	Special option for 24 and 48V armature motors.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Autoringing supply synchronisation</b>	Drive automatically adjusts to any mains supply frequency (45 - 65Hz).		✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Separate stack supply</b>	Allows control and power supplies to be at different voltages.										