DRIVING THE WORLD...

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LEROY SOMER

P.N. 0175-0346 04/07

EMERSON™
Industrial Automation

Unidrive SP

Free Standing
Fully Engineered Cabinet Drives

90kW to 675kW (150HP to 1000HP)
380 to 480V 3 phase

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Unidrive SP Free Standing

The fully engineered universal drive

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Unidrive SP Free Standing is a range of compact AC drives for high power motors in the range 90kW to 675kW. They inherit their reliability, performance and flexibility from the Unidrive SP modular range.

THE HARD WORK HAS BEEN DONE

Unidrive SP Free Standing drives are fully engineered and tested drive cabinets for AC input AC motor output configurations. The whole enclosure is certified to comply with international standards such as CE and UL. Proven design and international approvals release your engineering resources to focus on your application.

EASY TO ORDER AND READY TO GO

Unidrive SP Free standing drives may be ordered with three levels of customisation:

- Drive with factory engineered incomer
- Drive with accessories for user engineered incomer
- Drive Only

A factory engineered incomer allows the drive to be delivered so that it is ready to be sited in position, connected and commissioned.
A simple model number specifies the drive power, voltage and dynamic braking requirement. Simple additional order codes add cabinet ancillaries such as MCCB, line input contactor, safety relay and EMC filter. Standard cabinet colour and dimensions mean that Free Standing drives can be linked together with other manufacturers cabinets.

EASY TO MAINTAIN

Compact size and innovative design enables the drive modules to be easily accessed and removed for servicing or replacement. Standard modules ensure ready availability of components.

GLOBAL SERVICE

We understand your needs, Control Techniques 54 subsidiary Drive Centres located in 31 countries ensures that service, support and expertise are just around the corner, all around the world.

N1652

LISTED E147827

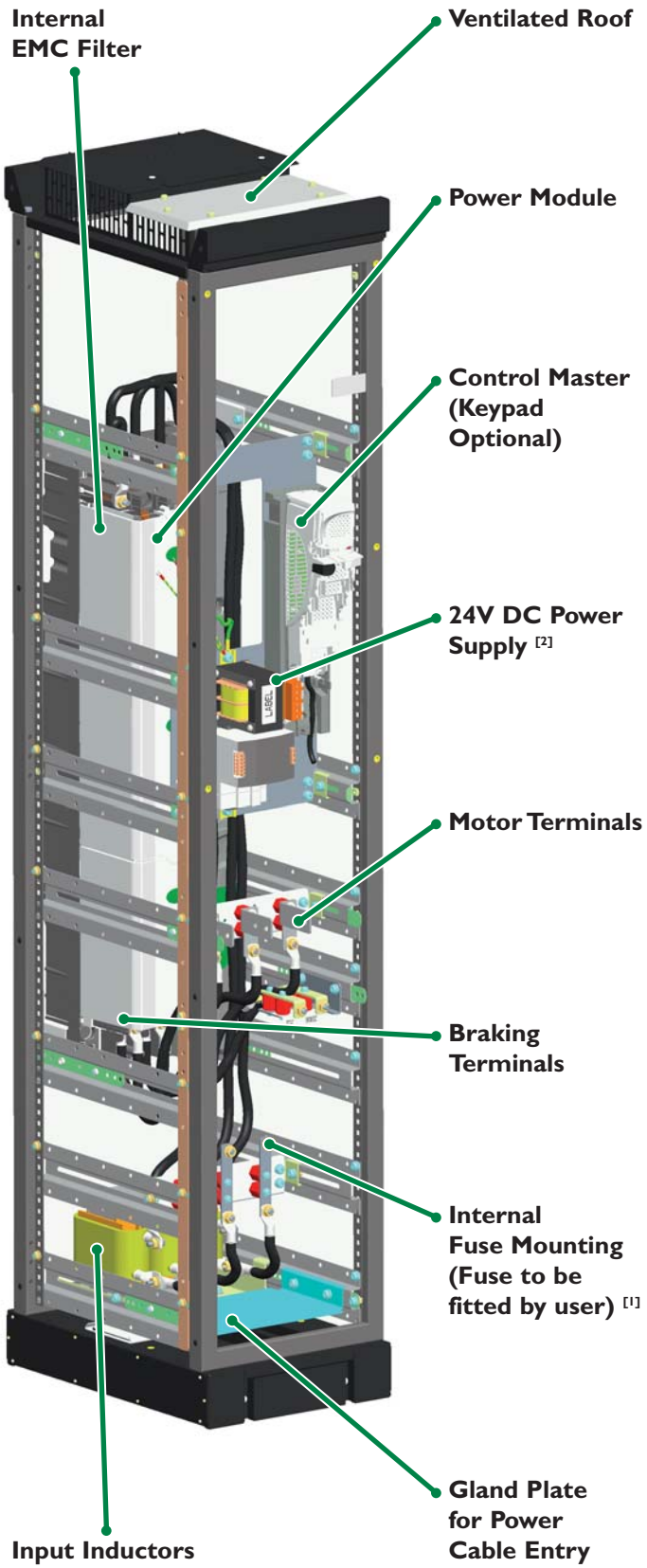
Unidrive SP Free Standing - A Complete Solution

THE FREE STANDING CABINET DRIVE

A complete engineered drive, Unidrive SP Free Standing eliminates the need for drive panel building saving you time and money allowing you to focus on your application.

SP9 (400-675kW)

SP6, SP7 & SP8 (90-355kW)

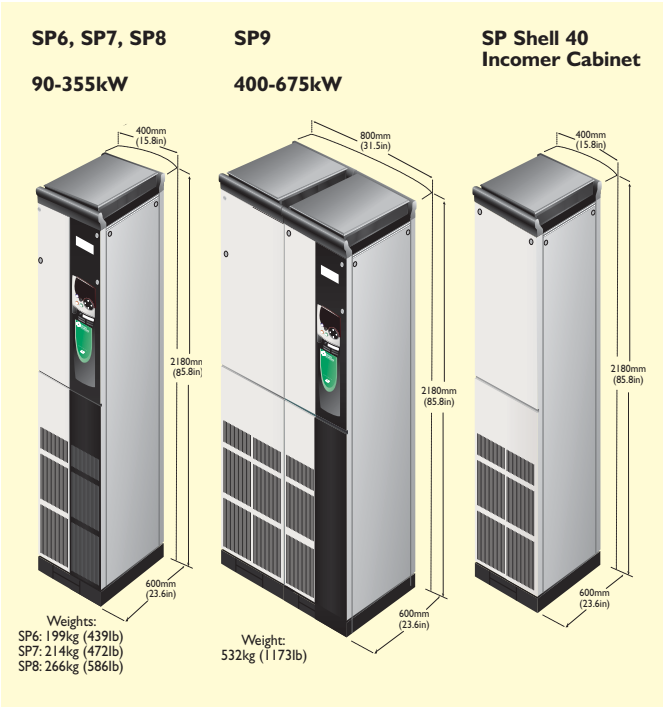


MUCH MORE COMPACT

355kW = 400mm Wide.

675kW = 800mm Wide.

Unidrive SP Free Standing drives are up to 50% smaller and much lighter than competitors 'compact' drive cabinets. As an example, a 200kW drive including all incomer ancillaries is only 400mm wide. This makes Unidrive SP Free Standing the obvious choice where space is a problem such as for new and retrofit energy saving applications.



PROVEN RELIABILITY

Unidrive SP Free Standing utilises mass produced modules with proven design and reliability. The modules and cabinets are assembled using a sequential build process that eliminates build variation and provides consistently high quality. Excellent thermal and electrical design and computer modelling has ensured the inverters have a long and productive life with trouble free operation.

A TRADITION OF PERFORMANCE SOLUTIONS

Control Techniques has a tradition of high performance solutions, Unidrive SP Free Standing is no different, able to control virtually any AC motor including synchronous machines.

MORE INTELLIGENT

Control Techniques is the market leader in intelligent drives, Unidrive SP has three option module slots that accept over 20 different options that supplement the drives standard features. Fieldbus, Ethernet, I/O, extra feedback devices, and automation controllers allow you to customise the drive to match your needs and integrate with your control system.

OPTION MODULES

Fieldbus Connectivity


Ethernet


Ethernet IP


Profibus


DeviceNet


CANopen


Interbus


CTNet


EtherCAT


SERCOS


LON

Feedback


Resolver


Universal Encoder


Incremental Encoder

Automation Contollers


Applications Lite


Applications Plus

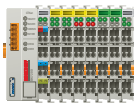

EZ Motion

Extra I/O


I/O with real time clock


High Density I/O


Additional I/O


Remote I/O

THE UNIDRIVE SP RANGE

Unidrive SP Free Standing is a part of the Unidrive SP family of high performance drives.

Unidrive SP Panel Mount
0.37kW – 132kW

Flexible drive modules for integration into cabinets

Brochure Order Code
0175-0339

Unidrive SP Modular
45kW – 1.9MW

High Power drive modules for flexible multi-drive power systems, capabilities include active input and DC bus based systems.

Brochure Order Code
0175-0345

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Unidrive SP Free Standing - Incomer

INCOMING POWER CONNECTION

Unidrive SP Free Standing gives you the convenience of specifying a fully engineered factory incomer for your drive, alternatively accessories are available to give you the flexibility to design and build your own incomer.

1. USING A FULLY ENGINEERED FACTORY INCOMER

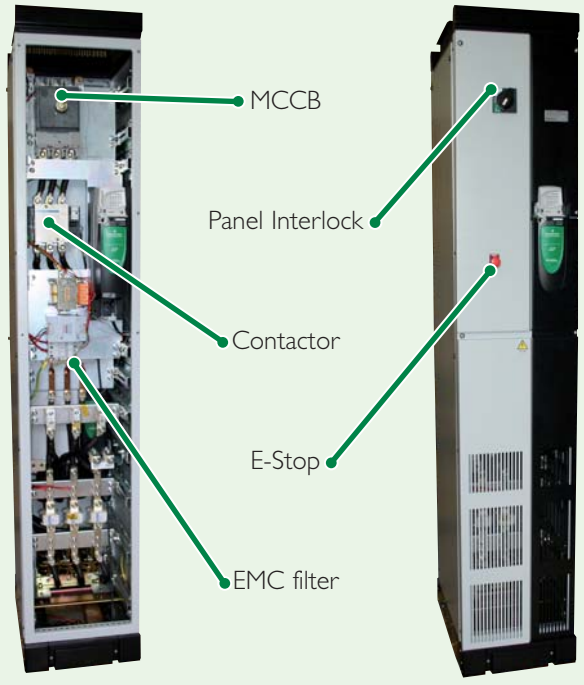
The fully engineered incomer allows you to specify a factory fitted power input scheme for your Free Standing drive complete with input components such as Contactors, MCCBs and EMC filters. This means the drive can be connected directly to your supply, reducing your engineering effort and installation time.

The adjacent table shows the incomer options available. For guidance on how to order your SPFS engineered incomer see pages 8 and 9.

Item	Details
MCCB Protection	For isolation and fault disconnection (Shunt trip operated)
Emergency Stop	For supply isolation
Safety Relay	For integrity monitoring of emergency stop (Only available when ordered with emergency stop)
Contactor	Line Contactor
EMC Filter	For compliance with IEC61000-6-4
Additional Input Inductance	Only available on SP6

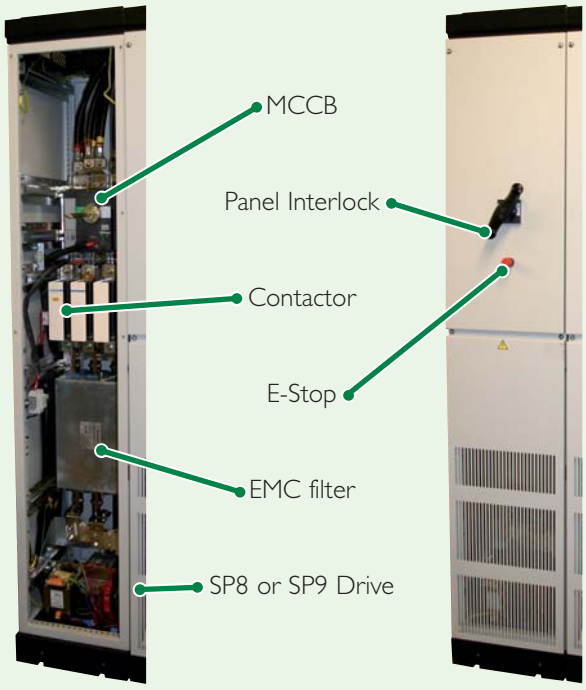
SP6 / SP7 Factory Engineered Incomer

The SP6 and SP7 incomer options are fitted within the drive cabinet, meaning the entire installation fits within a compact 400mm section.



SP8 / SP9 Factory Engineered Incomer

The SP8 and SP9 incomer options are located within an additional 400mm cabinet. Interconnection is made with SP P06 busbar kit.



2. DESIGNING YOU OWN INCOMER

A 400mm wide incomer cabinet may be ordered to allow you to install your own power input scheme. Connection to SP8 and SP9 drives is made with an interconnection busbar kit or with flexible cabling for SP6 and SP7 drives.

The incomer cabinet is shipped separately for ease of transportation and handling.

Item	Order codes
Empty Cabinet	SP Shell 40
6 Pulse Interconnection Busbar	SP P06 Kit
12 Pulse Interconnection Busbar	SP P12 Kit

User Designed Incomer

Pictured: SP9 with user designed incomer
(Interconnection made with SP P06 busbar kit)

POWER QUALITY

Supply harmonics may be minimised by using 12 pulse input versions of SP8 and SP9 Free Standing Drives. The 12 pulse input option is simply specified as part of the drive order code.

For 12 pulse drives the power connections are made within a separate incomer cabinet, this could be an empty incomer cabinet (SP Shell 40) or your own cabinet. Both methods use six phase interconnection busbar (SP P12 Kit).[4]

Engineered solutions that further reduce supply harmonics using passive in-line filters and active input modules are available through your Control Techniques drives supplier. These enable your applications to comply with the harmonics standards IEEE 519-1992, IEC 61000-2-2, IEC 61000-2-12 and G5/4-1.

DYNAMIC BRAKING

Unidrive SP Free Standing is also available with integrated dynamic braking control[5] allowing precision deceleration profiles to be achieved with your application. This option is specified as part of the drive order code.

SPECIFICATIONS

Environmental Safety and Electrical Conformance

- Humidity 95% maximum (non condensing) at 40°C
- Altitude: 0 to 3000m, derate 1% per 100m between 1000m and 3000m
- Vibration: Drive Modules tested in accordance with IEC 60068-2-34
- Mechanical Shock Tested: Drive Modules in accordance with IEC 60068-2-27
- Storage temperature -40°C to 50°C
- Electromagnetic Immunity complies with EN 61800-3 and EN 61000-6-2
- With on board EMC filter, complies with EN 61800-3 (2nd environment)
- EN 61000-6-4 with optional EMC filter
- IEC 60146-1-1 General requirements
- IEC 61800-5-1 Safety of Power Drive Systems
- IEC 61131-2 I/O
- EN 60529 Ingress protection
- Safe Torque Off (Secure Disable) meets EN 954-1-cat3
- UL508C
- CSA C22.2 no 14-05
- IP21 cabinet design, optional IP23

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Unidrive SP Free Standing - Order Codes

RATINGS

	Compact width (mm)		Order Code	Normal Duty [8]			Heavy Duty [8]		
	Drive only	With incomer cabinet		Max Continuous Current (A)	Typical Motor Output @ 400V (kW)	Typical Motor Output @ 460V (HP)	Max Continuous Current (A)	Typical Motor Output @ 400V (kW)	Typical Motor Output @ 460V (HP)
380-480VAC +/-10%	400	400	**SP64x1**	205	110	150	180	90	150
			SP64x2	236	132	200	210	110	150
			SP74x1	290	160	250	238	132	200
			SP74x2 [9]	350	200	280	290	160	250
		800	**SP84x1**	389	225	300	335	185	280
			SP84x2	450	250	400	389	225	300
			SP84x3	545	315	450	450	250	400
			SP84x4	620	355	500	545	315	450
	800	1200	**SP94x1**	690	400	600	620	355	500
			SP94x3	900	500	800	790	450	700
			SP94x4	1010	560	900	900	500	800
			SP94x5	1164	675	1000	1010	560	900

Note Select model on actual motor full load current

DRIVE ORDER CODES

Order your Free Standing Drive using the order code below

SP 8 4 1 1 -P12 -E23

Unidrive Product Line
SP - Solution Platform
Complete AC in, AC out drive

Power range
6 to 9 - Free Standing

Voltage Range
4 - 380V to 480V

Free Standing Configuration
1 - SPFS With dynamic brake control **3** - SPFS No dynamic brake control

Current Rating Step

Input Pulse number
6 Pulse (Default)
-P12 - 12 Pulse

Enclosure rating
(including incomer if specified)
IP21 (Default)
-E23 - IP23

INCOMER ORDER CODES

Factory installed incomer equipment			
Drive	**Description**	**Item**	**Order Codes**
SP6 / SP7	Drive with factory installed incomer equipment (Incomer equipment integral to drive cabinet)	Drive	SPx4xx-Pxx-Exx
SP8 / SP9	Drive with factory installed incomer equipment (Incomer equipment housed within an additional cabinet) Interconnection made with 6 pulse busbar.	Drive	SPx4xx-Pxx-Exx
		Incomer Cabinet	SP Shell 40-Exx
		Busbar	SP P06 Kit
Use the order codes below to identify the incomer equipment you require			**Order Codes**
MCCB			SP MCCB
Emergency-Stop			SP E-Stop
Safety Relay (Only available when ordered with E-Stop)			SP Safety Relay
Contactor			SP Contactor
EMC Filter			SP EMC
Additional Line Inductor (Only available on SP6)			SP Line Inductor

SEPARATE INCOMER AND DRIVE ACCESSORIES

Order Code	Description
SM-Keypad	LED display for configuration and monitoring
SM-Keypad Plus	Enhanced multi-language LCD display
SP Shell 40	Empty cabinet (400mm Wide)
SP Shell 40-E23	Empty cabinet (400mm Wide) - IP23 Rated
SP Shell Side Panels[7]	2 side panels for SP Shell 40 (Standalone use)
SP P06 Kit	6 Pulse Interconnection Busbar for SP8 and SP9
SP P12 Kit[4]	12 Pulse Interconnection Busbar for SP8 and SP9
6711-0001-00	Mounting Rail (1 Off) - Enables user to mount their own incomer equipment
6541-0047-00	LHS Mounting Bracket - To attach the mounting rail to left hand side
6541-0048-00	RHS Mounting Bracket - To attach the mounting rail to right hand side

FUSE ORDER CODES

Internal AC Fuse Selection (Semi Conductor IEC class aR)					
Drive	(A)	Ferraz [10]		Bussman [10]	
		Order Code	Manufacturer Part No.	Order Code	Manufacturer Part No.
SP6 & SP7	400	4300-0400	E300177	3533-4069	170M3019
SP8 & SP9	800	4300-0800	L300183	3533-8069	170M5014

EXAMPLES

160kW drive for heavy duty operation with dynamic braking capability	
Items	**Order Code**
SP7412 IP23 with incomer containing MCCB, Contactor and EMC filter Total width = 400mm	● SP7412-E23 ● SP MCCB ● SP EMC ● SP Contactor

225kW drive for normal duty operation with dynamic braking capability	
Items	**Order Code**
SP8411 IP21 with separate incomer containing circuit breaker, E-Stop, EMC filter, contactor and safety relay Total width = 800mm	● SP8411 ● SP Shell 40 ● SP P06 Kit ● SP MCCB ● SP E-Stop ● SP EMC ● SP Contactor ● SP Safety Relay

500kW drive with 12 pulse input, rated for normal duty operation, no dynamic braking required	
Items	**Order Code**
SP9433 IP21 with12 pulse input accessories and supplied with an empty cabinet to house user installed incomer equipment Total width = 1200mm	● SP9433-P12 ● SP Shell 40 ● SP P12 Kit

NOTES

[1] Semi Conductor Fuses are not included but may be ordered separately for fitment at your site.

[2] The 24V power supply requires a user 115V or 230V AC supply.

[3] Additional Input Inductance available on SP6 only.

[4] For 12-Pulse installations the supply must be from a double wound star-delta transformer.

[5] Dynamic braking control does not include the braking resistor or associated components.

[6] Power connection between SP6 & SP7 drives and the incomer cabinet should be made using 95mm^2 cabling (6 Pulse interconnection busbar for SP8 & SP9 drives only).

[7] SP Shell Side Panels allow the SP Shell 40 cabinet to be used standalone i.e. not connected to an SPFS drive.

[8] All ratings given are for a maximum room temperature of 40C. However when selecting the E23 protection rating the maximum room temperature is 33C, except for SP9414 and SP9415 which is 35C. Alternatively E23 cabinets can be operated at 40C with a de-rated current, please see SP User Manual for current ratings.

[9] SP7412 rating is 350A at a room temperature of 35C, 335A at 40C.

[10] Ferraz fuses must be used for applications which require UL approval.