



Unidrive

Free Standing
Fully Engineered Cabinet Drives

90kW to 675kW (150hp to 1000hp)
380 to 690V 3 phase

Unidrive SP Free Standing

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.

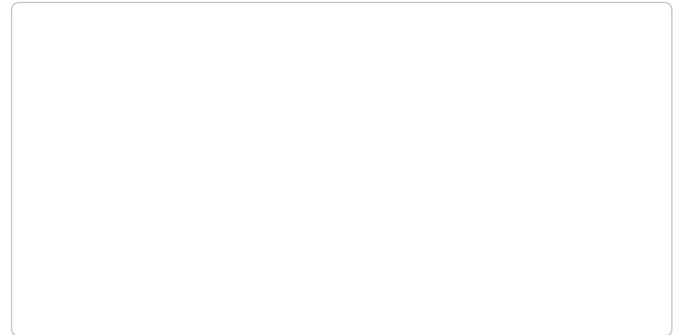
Ideal for fans, pumps, extruders

Unidrive SP Free Standing drives are suitable for higher power applications, both commercial and industrial. Typical applications include:

- Energy saving with higher power fans and pumps
- Gas and refrigeration compressors
- Metal production and processing
- Conveying and handling of bulk materials
- Pulp and paper processing
- Marine applications

Much more compact

Unidrive SP Free Standing drives are up to 50% smaller and are significantly lighter than competitors' 'compact' drive cabinets. For example, a 355kW drive is only 400mm wide and a 675kW drive is only 800mm wide. This makes Unidrive SP Free Standing the obvious choice where space is a problem such as for new or retrofit energy saving applications.



Proven reliability

Unidrive SP Free Standing utilises mass produced modules of 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 drives have a long and productive life with trouble free operation.

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 89 subsidiary Drive Centres and resellers in 65 countries ensure that service, support and expertise are just around the corner, all around the world.

A tradition of performance solutions

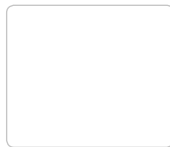
Unidrive SP Free Standing continues the Control Techniques tradition of high performance solutions, able to control virtually any type of AC motor including synchronous machines.

Complete solutions

A complete engineered drive, Unidrive SP Free Standing eliminates the need for drive panel building, saving you time and money therefore allowing you to focus on your application. For applications where line-side equipment such as main switches, contactors or EMC filters are required there are two possible approaches.

Drive Centre engineered Incomer

Our Drive Centre network can design and build an incoming power section for your Free Standing drive to include all the line-side equipment the application requires. This means the drive is delivered ready to be connected directly to your supply, reducing your engineering effort and installation time.



User engineered Incomer

For users wishing to design and build their own incoming power section a range of accessories are available, including empty 400mm cabinets allowing you to install your own line-side equipment along with any application specific equipment you have. Alternatively standard cabinet colour and dimensions mean that Free Standing drives can be bayed to other manufacturer's cabinets.



Users designing incomers for size 8 and 9 Free Standing drives should order empty cabinet SP Incomer Shell 40-EXX. This cabinet is supplied along with interconnection busbars.

Users designing incomers for size 6 and 7 Free Standing drives should order empty cabinet SP Systems Shell 40-EXX. This cabinet is supplied without interconnection busbars as cables are used to make the connection^[4].

| Item | Description |
|-----------------------------|--|
| SP Incomer Shell 40-EXX | Empty cabinet with 6 pulse interconnection busbar |
| SP Incomer Shell 40-P12-EXX | Empty cabinet with 12 pulse interconnection busbar |
| SP Systems Shell 40-EXX | Empty cabinet |

Power quality

For applications requiring harmonic attenuation beyond that achieved by the internal filter choke we offer 12 pulse input versions of the size 8 and 9 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 (SP-Incomer Shell 40- P12-EXX)^[2].

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

Unidrive SP Free Standing ratings

| | Order Code | Normal Duty ^[5] | | | Heavy Duty ^[5] | | |
|--------------------|-----------------------|----------------------------|----------------------------------|----------------------------------|----------------------------|----------------------------------|----------------------------------|
| | | 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-% | SP64x1 | 205 | 110 | 150 | 180 | 90 | 150 |
| | SP64x2 | 236 | 132 | 200 | 210 | 110 | 150 |
| | SP74x1 | 290 | 160 | 250 | 238 | 132 | 200 |
| | SP74x2 ^[6] | 350 | 200 | 300 | 290 | 160 | 250 |
| | 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 |
| | 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 |

| | Order Code | Normal Duty ^[5] | | | Heavy Duty ^[5] | | |
|--------------------|------------|----------------------------|----------------------------------|----------------------------------|----------------------------|----------------------------------|----------------------------------|
| | | Max Continuous Current (A) | Typical Motor Output @ 690V (kW) | Typical Motor Output @ 525V (hp) | Max Continuous Current (A) | Typical Motor Output @ 690V (kW) | Typical Motor Output @ 525V (hp) |
| 500-690Vac +/-10-% | SP66x1 | 125 | 110 | 125 | 100 | 90 | 100 |
| | SP66x2 | 144 | 132 | 150 | 125 | 110 | 125 |
| | SP76x1 | 168 | 160 | 150 | 144 | 132 | 150 |
| | SP76x2 | 192 | 185 | 200 | 168 | 160 | 150 |
| | SP86x1 | 231 | 200 | 250 | 186 | 185 | 200 |
| | SP86x2 | 266 | 225 | 300 | 231 | 200 | 250 |
| | SP86x3 | 311 | 315 | 350 | 266 | 250 | 300 |
| | SP86x4 | 355 | 355 | 400 | 311 | 315 | 350 |
| | SP96x1 | 400 | 400 | 500 | 347 | 355 | 400 |
| | SP96x3 | 533 | 500 | 600 | 466 | 450 | 500 |
| | SP96x4 | 616 | 560 | 700 | 533 | 500 | 600 |
| | SP96x5 | 711 | 670 | 800 | 622 | 560 | 700 |

Normal Duty

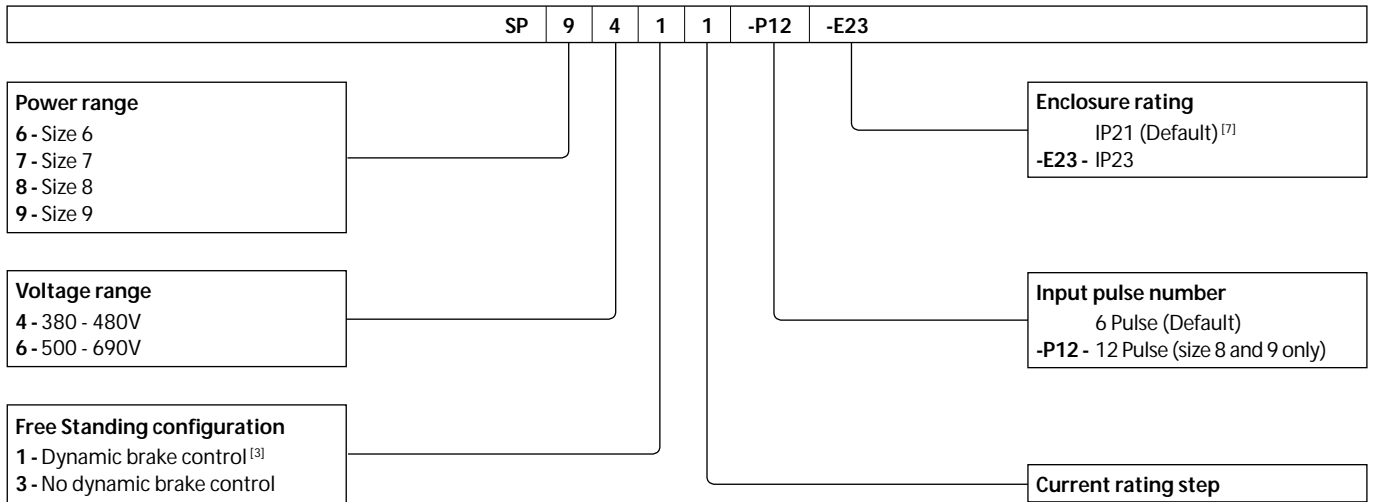
Suitable for most applications, current overload of 110% for 165 seconds is available. Where motor rated current is less than the drive rated continuous current, higher overloads are achieved.

Heavy Duty

Suitable for demanding applications, current overload of up to 150% for 60 seconds

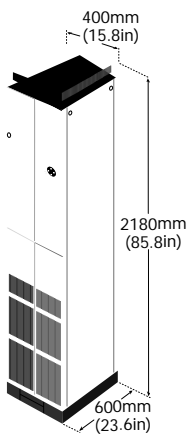
Unidrive SP Free Standing order codes, dimensions and specifications

Order Codes

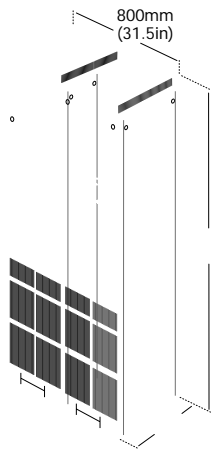


Dimensions

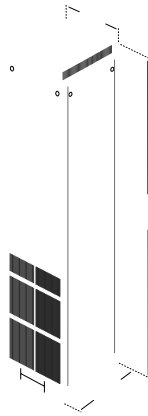
SP6/7/8



SP9



SP Incomer Shell 40/
SP Systems Shell 40



Maximum weight

SP6: 225kg (496lb)
SP7: 240kg (529lb)

SP8: 266kg (586lb)
SP9: 532kg (1173lb)

SP Incomer Shell 40/
SP Systems Shell 40:
55kg (121lb)

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)
- EN61000-6-4 with optional EMC filter (contact the supplier of your drive)
- 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

Unidrive SP Free Standing accessories and fuse order codes

Seperate Free Standing accessories

| Order Code | Description |
|-----------------------------|---|
| SM-Keypad | LED display for configuration and monitoring |
| SM-Keypad Plus | Enhanced multi-language LCD display for configuration and monitoring |
| SP Incomer Shell 40 | Empty cabinet (400mm wide) with 6 pulse interconnection busbar |
| SP-Incomer Shell 40-E23 | Empty cabinet (400mm wide, IP23 rated) with 6 pulse interconnection busbar |
| SP-Incomer Shell 40-P12 | Empty cabinet (400mm wide) with 12 pulse interconnection busbar |
| SP-Incomer Shell 40-P12-E23 | Empty cabinet (400mm wide, IP23 rated) with 12 pulse interconnection busbar |
| SP Systems Shell 40 | Empty cabinet (400mm wide) |
| SP Systems Shell 40-E23 | Empty cabinet (400mm wide) - IP23 rated |
| 6711-0001-00 | Mounting Rail (x2 required) – Enables user to mount their own incomer equipment when used in conjunction with mounting brackets |
| 6541-0047-00 | Left hand side mounting bracket - To attach equipment to the mounting rail on left side |
| 6541-0048-00 | Right hand side mounting bracket - To attach equipment to the mounting rail on right side |
| 6541-0051-01 | Baying bracket (x4 required) - To bay the drive with Rittal cabinets |

Fuse order codes

| Internal AC Fuse Selection (Semi Conductor IEC class aR) | | | | | | | | | |
|--|------|-------------------|------------|---|------------------|------|-------------------|------------|---|
| 380-480V | | | | | 500-690V | | | | |
| Drive | (A) | Quantity required | Order Code | Manufacturer Part No. (Ferraz) ^[1] | Drive | (A) | Quantity required | Order Code | Manufacturer Part No. (Ferraz) ^[1] |
| SP64x1/2 | | | | | SP66x1/2 | | | | |
| SP74x1/2 | 400A | 3 | 4300-0400 | E300177 | SP76x1/2 | 400A | 3 | 4300-0400 | E300177 |
| SP84x1 | | | | | SP86x1 | | | | |
| SP84x2/3/4 | 800A | 3 | 4300-0800 | L300183 | SP86x2/3/4 | 800A | 3 | 4300-0800 | L300183 |
| SP84x1/2-P12 | 400A | 6 | 4300-0400 | E300177 | | | | | |
| SP84x3/4-P12 | 800A | 6 | 4300-0800 | L300183 | SP86x1/2/3/4-P12 | 400A | 6 | 4300-0400 | E300177 |
| SP94x1 | 400A | 6 | 4300-0400 | E300177 | SP96x1/3/4/5 | 800A | 6 | 4300-0800 | L300183 |
| SP94x3/4/5 | 800A | 6 | 4300-0800 | L300183 | SP96x1/3-P12 | 400A | 12 | 4300-0400 | E300177 |
| SP94x1/3-P12 | 400A | 12 | 4300-0400 | E300177 | SP96x4/5-P12 | 800A | 12 | 4300-0800 | L300183 |
| SP94x4/5-P12 | 800A | 12 | 4300-0800 | L300183 | | | | | |

Notes

- [1] Semi conductor fuses are not included but may be ordered separately for customer fitment. Ferraz fuses must be used for applications requiring UL approval.
- [2] For 12-Pulse installations the supply must be from a double wound star-delta transformer.
- [3] Dynamic braking control does not include the braking resistor or associated components.
- [4] Power connection between size 6 and 7 drives and the incomer should be made using 95mm² cabling.

- [5] All ratings given are for a maximum room temperature of 40°C. However when selecting the E23 protection rating the maximum external temperature is 33°C, except for SP9414 and SP9415 which is 30°C. Alternatively E23 cabinets can be operated at 40°C at reduced current, please see the User Guide for current ratings.
- [6] SP7412 rating is 350A at a room temperature of 35°C, 335A at 40°C.
- [7] IP23 is not UL approved.

Unidrive SP Free Standing - The fully engineered universal drive

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 drive's standard features. Fieldbus, Ethernet, I/O, additional feedback devices, and automation controllers allow you to customise the drive to match your needs and integrate with your control system.

The Unidrive SP range

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

Unidrive SP Solutions Platform Overview & SP Panel Mount 0.37kW - 132kW

Unidrive SP main brochure. Featuring SP Panel Mount, flexible drive modules for integration into cabinets



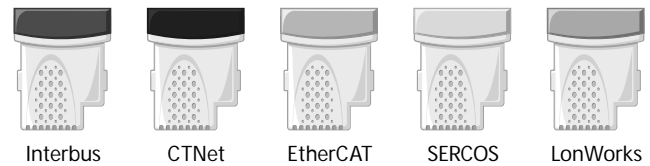
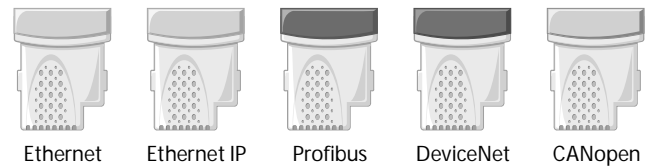
Unidrive SP Modular 45kW – 1.9MW

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

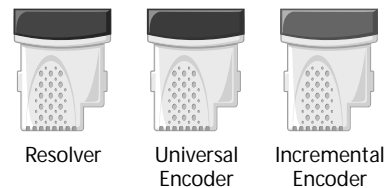


Option modules

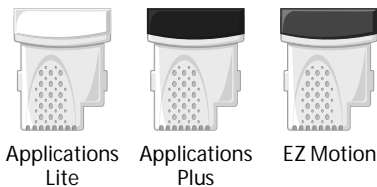
Fieldbus Connectivity



Feedback



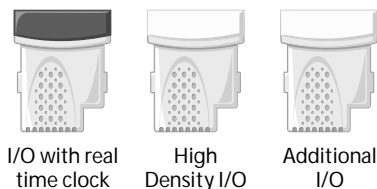
Automation Controllers



Extra I/O (external)



Extra I/O (internal)



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