

Unidrive *SPM* — 60 hp to 2900 hp

Modular drives ideal for system integrators and OEMs

The Unidrive SPM — Solution Platform Modular systems give integrators and OEMs added flexibility to design and build high power AC drives that meet their exact requirements.

The Unidrive SPM platform offers all of the standard and optional features available on the panel mount SP drives and is integrated using the same software tools for commissioning and programming.



The modular nature of the power circuit allows drive systems to be constructed in non-standard enclosures. For example, it is possible to implement a drive system of between 60 and 2900 hp in an enclosure no taller than 36 in.

FEATURES

- Control high current motors by paralleling output inverter modules
- Compact IP20 input and output power modules
- Utilize an existing DC supply
- Return braking energy to AC supply with standard inverter modules
- Recycle energy between simultaneously motoring and regenerating drives
- Enable a single AC power entry
- Minimize harmonics with 12-, 18- and 24-pulse rectifier configurations
- Eliminate harmonics with an active front end
- IP54 heatsink with through panel mounting

BENEFITS

- Build customized high power drives with standard volume produced modules
- Create a comprehensive range of custom power systems
- Economic integration with existing plant
- Reduce running cost
- Ideal for unwinding / winding processes
- Simplify installation and minimize cabling
- Meet more demanding supply regulations
- Comply with supply regulations
- Allows smaller enclosure size, reduces cooling requirements

Unidrive SPMs

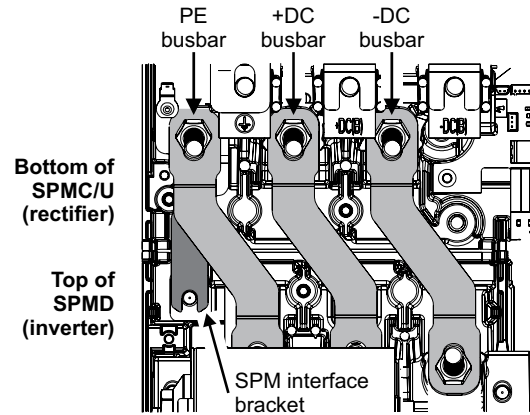
SPM MODULE DESCRIPTIONS

SPMA - Is a complete inverter drive (AC in, AC out) with internal rectifier capable of being parallel connected with SPMA modules of equal rating. DC connections are present for regen and common bus applications.

SPMD - Inverter module (DC in, AC out) that requires a DC power supply from either an SPMC/U or an existing source.

SPMC - **C**ontrolled rectifier bridge module (AC in, DC out) used as a front end power supply to the SPMD inverter module.

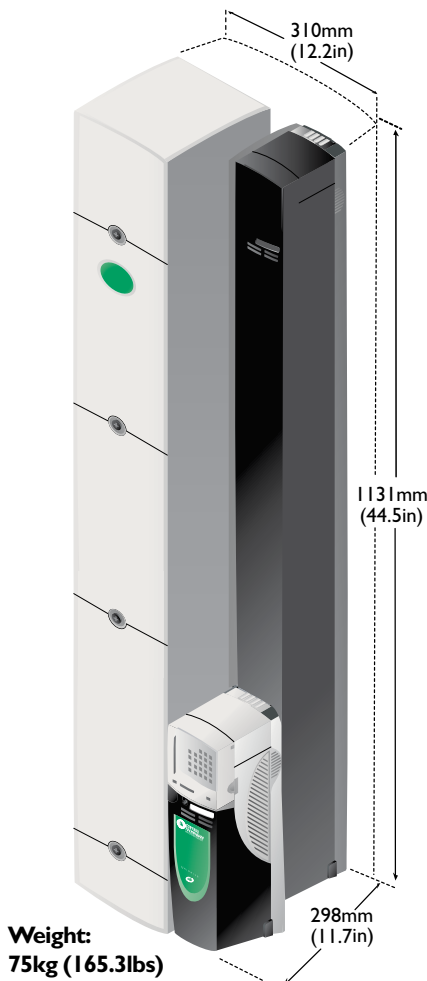
SPMU - **U**ncontrolled rectifier bridge (AC in, DC out) used as a front end power supply to the SPMD inverter module. A separate soft start must be provided.



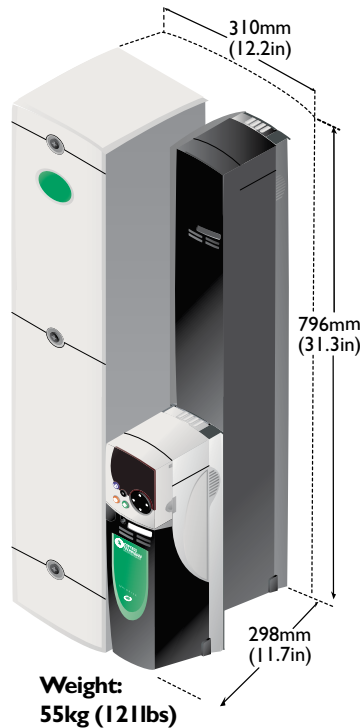
Docking kits are available that provide the necessary hardware to directly mount the SPMC to an SPMD.

Input line reactors and output sharing chokes are specified and available.

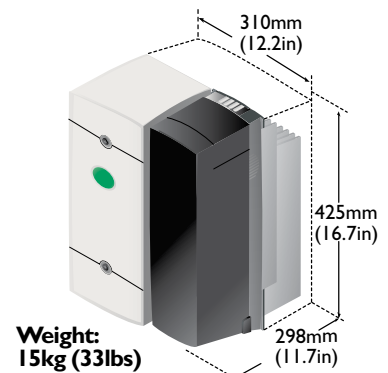
SPMA



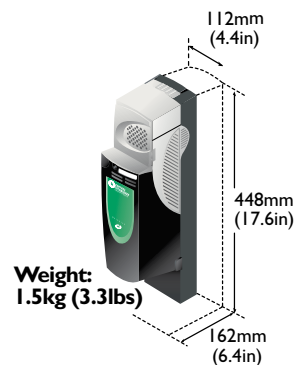
SPMD



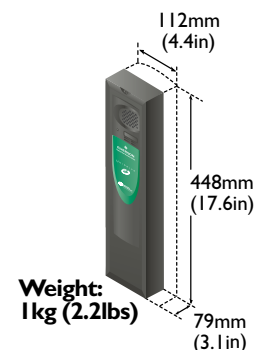
SPMC/U



SM-Control Master



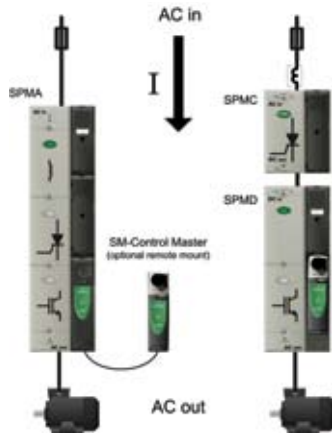
SM-Control Follower



Basic Configurations

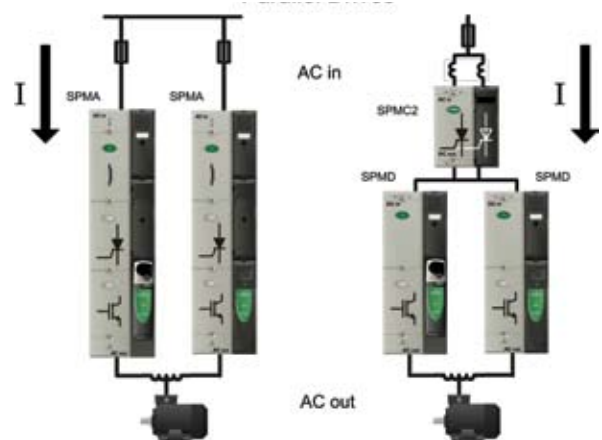
The examples below demonstrate the versatility of the Unidrive SPM in creating a wide range of High Power AC drives.

Single Drives



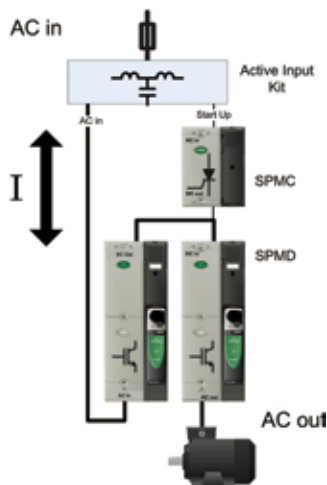
The SPMA solution will be lower cost but the SPMD solution may give site standardization. The master control module on the drive may be replaced by a follower module and the master can be remotely mounted, as the application requires.

Parallel Drives



For higher currents multiple SPMA or SPMDs may be configured in parallel. The SPMA may give shorter installation time with less interconnections but the SPMD may give lower cost. Site standardization may also be a factor.

Active Input and Regeneration



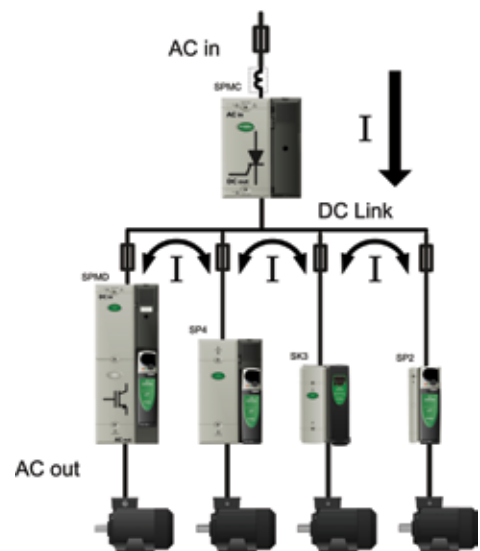
Active inputs for harmonic elimination and regenerating excess energy can be configured with standard drive modules, configured as motoring or regenerating.

12 Pulse Input Current



Multi-pulse rectifiers can be configured (12, 18 and 24 etc.) to minimise input harmonics and help to meet local supply authority regulations.

Common DC bus



Drives from the Unidrive and Commander families can be connected on a common DC bus system, in order to circulate energy between drives with opposing energy flow, supplied from a controlled rectifier input (SPMC), an active input (SPMA or SPMD) or an existing DC source.

Unidrive SPMs



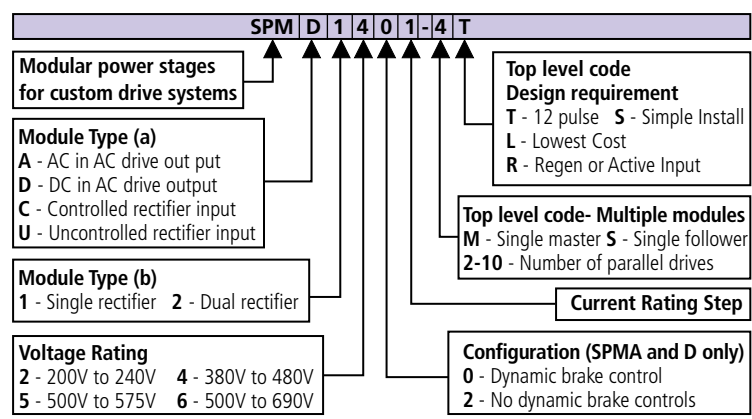
Unidrive SPMs

	Drive	Output Module Selection							DC Fuse Selection	Input Module Selection				24V DC Input [3]	AC Fuse Selection
		Normal Duty			Heavy Duty			24 VDC Input [3]		Controlled		Uncontrolled			
		Max Cont. Current	Typical Motor Output		Max Cont. Current	Typical Motor Output				Single	Dual	Single [3]	Dual [3]		
		Order Code	A	220V kW	230V hp	A	220V kW			230V hp	A	A	A		
200-240 VAC +/- 10%	SPMD1201	192	55	75	156	45	60	3.3	400	na	na	SPMU1402	SPMU2402	3.0	400
	SPMD1202	248	75	100	192	55	75	3.3	550	na	na				
	SPMD1203	312	90	125	250	75	100	5.0	550	na	na				
	SPMD1204	350 ^[1]	110 ^[1]	150 ^[1]	290	90	125	5.0	550	na	na				
		A	400V kW	400V hp	A	400V kW	400V hp								
380-480 VAC +/- 10%	SPMA1401	205	110	150	180	90	150	3.3	na	na	na	na	na	na	315
	SPMA1402	236	132	200	210	110	150	3.3	na	na	na	na	na	na	350
	SPMD1401	205	110	150	180	90	150	3.3	400	SPMC1402	SPMC2402	SPMU1402	SPMU2402	3.0	400
	SPMD1402	246	132	200	210	110	150	3.3	560						
	SPMD1403	290	160	250	246	132	200	5.0	560						
	SPMD1404	350 ^[1]	200 ^[1]	300 ^[1]	290	160	250	5.0	560						
		A	575V kW	575V hp	A	575V kW	575V hp								
500-575 VAC +/- 10%	SPMA1601 ^[2]	125	90	125	100	75	100	3.3	na	na	na	na	na	na	200
	SPMA1602 ^[2]	144	110	150	125	90	125	3.3	na	na	na	na	na	na	200
	SPMD1601 ^[2]	125	90	125	100	75	100	3.3	250	SPMC1601	SPMC2601	SPMU1601	SPMU2601	3.0	250
	SPMD1602 ^[2]	144	110	150	125	90	125	3.3	315						
	SPMD1603 ^[2]	168	110	150	144	110	150	5.0	350						
	SPMD1604 ^[2]	192	150	200	168	110	150	5.0	400						
		A	600V kW	600V hp	A	600V kW	600V hp								
500-690 VAC +/- 10%	SPMA1601	125	110	150	100	90	125	3.3	na	na	na	na	na	na	200
	SPMA1602	144	132	175	125	110	150	3.3	na	na	na	na	na	na	200
	SPMA1601	125	110	150	100	90	125	3.3	250	SPMC1601	SPMC2601	SPMU1601	SPMU2601	3.0	250
	SPMA1602	144	132	175	125	110	150	3.3	315						
	SPMA1603	168	160	200	144	132	175	5.0	350						
	SPMA1604	192	185	250	168	160	200	5.0	400						

Option Reference	Order Code
SM-Control Master	SM-Control Master
SM-Control Follower	SM-Control Follower ^[4]
24V DC Supply - 10A	8510-0000
SPM Docking Kit	3470-0012

Normal Duty Suitable for most applications, current overload is set at 110% for 60 seconds. Where motor rated current is less than the drive continuous current, higher overloads are achieved.

Heavy Duty (Rotor Flux Control and Closed Loop) Suitable for demanding applications, current overload is set at up to 150% for 60 seconds. Where motor rated current is less than the drive rated continuous current overloads (200% or greater) are achieved.



Notes:
 [1] The full rating is only possible when the SPMD is mounted separately to the SMPC. That is, a single module can deliver 350A with a separate airflow path for each module and Tambient = <35°C. Otherwise the limit is 335A.
 [2] The same model can be used on a 575V or a 690V supply and has two different output ratings. e.g. At Normal Duty, SPMD1601 is suitable for a 90 kW output motor on a 575V but is suitable for a 110 kW output motor on 690V.
 [3] All SPM modules require a 24 VDC power supply for the cooling fans. The total 24 VDC current required can be assessed in the table and a 24 VDC supply chosen.

[4] For paralleling, the necessary interface cable that connects a follower to a master or another follower is delivered with the follower module.
 [5] A separate soft start must be provided for the DC link. Please contact your supplier.
 [6] Input inductance may be incorporated in star-delta transformer.
 [7] Only 400A AC and DC fuses are stocked by Control Techniques, as these are used with other products.
 [8] For more information, contact your supplier.