

Low harmonics Notch Filter Drive



SD700FL

The unique features of the SD700 drive are improved adding an input notch filter that reduces the THDi below 5%^[1]. It is constructed through the parallel connection of individual filtering modules, all controlled and monitored by the drive. Each module integrates temperature sensors and a contactor that isolates the long life integrated capacitors. This contactor is controlled by the drive depending on the motor load to get best filtering features.

What makes SD700FL different? The filtering features do not depend on the grid impedance, that means that the filter will never cause resonance as the passive filter could cause, and its performance will not vary significantly after electrical grid modifications. This feature makes it suitable for any low harmonic application.

[1]Harmonics are below the limits defined in IEEE519 for all ISC/IL

RUGGED AND RELIABLE SOLUTION FOR LOW HARMONICS APPLICATIONS

- IP54 WITHOUT DUST FILTERS
- 50°C OPERATION WITHOUT POWER DERATING
- (FFA) FULL FRONTAL ACCESS
- MODULAR POWER STAGE AND NOTCH FILTER
- BUILT-IN RFI FILTER
- BUILT-IN DV/DT FILTER 500V/µS-800V/µS (SCREENED CABLE UP TO 300M)
- CONFORMALLY COATED ELECTRONICS WITH MILITAR AND AEROSPACE TECHNOLOGY



LOW HARMONIC DRIVE

The additional input filter customised for your application ensures a THDi level that meets all the projects requirements. SD700FL is not a common passive filter, its performance does not depend on the grid impedance so the filter will never cause resonance under normal working conditions.



The passive filters are usually LC filters designed specifically to filter the 5th and 7th harmonic for a specific grid configuration and impedance Zg. If the grid impedance is modified due to the introduction of new loads or motors, the filtering features are modified and may cause a resonance effect in the worst case.

The Notch filter integrates a line impedance that makes negates the grid, consequently the variation of the grid impedance does not affect the filtering features. We create long lasting solutions to meet today and future needs.



WIDE VOLTAGE AND POWER RANGE

400Vac and 690Vac from 22kW to 1800kW.

COMPLETE AND FULLY TESTED SOLUTION

Forget about buying independent filters and separate solutions. SD700FL is a truly tested solution designed for your application. The drive monitors the temperature and activates the integrated contactor of the filter to provide the best performance under any load condition.



FL SERIES Technical Characteristics

SD700 FL SERIES

	Power range	2.2kW - 1800kW [1]						
	Voltage power	380-500Vac, 690Vac, 3 phase (+10%)						
	Multipulse	6						
	Inditipalse	50Hz/60Hz + 6%						
	Disals search a survey for shore	Thyristor-blode						
	Displacement power factor	> 0.99						
INPUT	$(DPF = \cos \Phi)$	2000						
	Power factor (PF= I_1 /Irms· cos Φ)	≥ 0.98						
	Momentary power loss	> 2sec (depending on the load inertia)						
	EMC input filter	Frames 1 & 2: First environment (C2 standard)						
		Frames 3 to 11: Second environment (Industrial) (C3 Standard)						
		First environment (C2 Optional), C1 consult Power Electronics						
	Harmonics filter	Noteb Eilter						
	Regenerative	NO						
	Output frequency [3]	0 200Hz						
	Overload capacity	150% during 60s at 50°C						
	Efficiency	>97%						
	(at rated current and rated voltage)							
	Control method	V/Hz						
OUTPUT		VECTOR CONTROL						
COTFOT		Open Loop: PMC: speed (OLSP)/torque control (OLTQ), AVC: speed(OLSP) / torque control (OLTQ						
		Close Loop (Encoder): PMC:speed (CLSP)/torque control (CLTQ), AVC: speed(CLSP)/torque control (CLTQ)						
	Switching frequency	4 to 8kHz - PEWave						
	Output dv/dt filter	500 to 800V/us						
	Output cable length [4]	USC 300m						
	Output cable length to	SC 150m						
		Schonin Brake						
	Dynamic brake	External DISO Dynamic Drake						
	Operation ambient temperature	Minimum: -20°C Maximum: +50°C						
	Storage temperature	Minimum: -40°C Maximum: +70°C						
ENVIRON-	Altitude	1000m						
MENTAL	Power altitude derating []	>1000m 1% P. (kW) per 100m 4000m maximum						
CONDI-	Ambient humidity							
		1042 Either California California California						
	Degree of protection	1P42 Filter Cabinet / (IP20/IP54) Drive Cabinet						
	Vibration	Deflection: 0.075mm (IOHz-5/Hz), Acceleration: 9.8m/s* (5/Hz-150Hz)						
	Heating resistors	Optional						
	Motor protections	Rotor locked, Motor overload (thermal model), Output current limit, Phase current imbalance, Phase voltage imbalance, Motor over-temperature (PTC signal), Speed limit, Torque limit						
PROTEC-	Drive protections	IGRT's overload input phase loss Low input voltage High input voltage DC Bus voltage limit Low						
TIONS		DC Bus voltage. High input frequency Low input frequency. IGBT temperature Heat-sink						
monto		aver tangarature Dever supply fault. Drue thermal model Cround fault. Software and Landware						
		over-temperature, nover supply latit, Drive themia model, Ground latit, software and hardware						
		fault, Analogue input signal loss (speed reference loss), Safe stop / Emergency stop.						
	Digital inputs	5 programmable active high (24Vdc), Isolated power supply						
	5	1 PTC input,						
	Digital outputs	3 Programmable changeover relays (250Vac. 8A or 30Vdc. 8A)						
		2 Programmable differential inputs: 0 - 20mA 4 - 20mA 0 - 10Vdc and +10Vdc						
	Analogue input	(Ontically isolated)						
	Applaque outputs	2 isolated programmable output: 0, 20mA, 4, 20mA, 0, 10/de and ±10/de						
		2 isolated programmable outputs. 0 - 20mA, 4 - 20mA, 0 - 104d and ±104dd						
	Encoder Inputs (optional)	Differential encoder input: voltages inputs from 5 to 24 vdc						
0011013	User power supply	+24Vdc user power supply (Max I80mA) regulated and short-circuit protected						
		+10Vdc user power supply (Max 2 potentiometers R= 1 k Ω) regulated and short-circuit protected						
		4 Digital Inputs: Programmable inputs and active high (24Vdc). Optically isolated.						
		1 Analogue Input: Programmable and differential input.						
	I/O Extension board (optional)	5 Digital Outputs: Programmable multi-function relays.						
		1 Analogue Output: Programmable outputs in voltage / current.						
	External power supply (optional)	24 V External Power Supply, Fault Relay integrated						
NOTES	 Other configuration, consult Power Electronic Harmonics are below the limits defined in IEEE519 for all I_{sc}/I_L 	5. [3]: For operation frequencies higher than 100Hz consult Power Electronics. [4] SC: Shielded cable, USC: Unshielded Cable, Follow Power Electronics installation recommendations. For greater cable lengths and first environment (C2) consult Power Electronics.						

FL SERIES Technical Characteristics

SD700 FL SERIES

		USB port								
	Standard hardware	RS232 port								
		RS485 port								
	Standard protocol	Modbus-RTU								
COMMU-		Profibus-DP								
NICATION		DeviceNet								
		Ethernet (Modbus TCP)								
	Optional protocol	Ethernet IP								
		CAN Open								
		N2 Metasys Gateway								
	Type	Removable								
	Length	3 meters and 5 meters (optional)								
	Connection	RJ45								
	Visualization leds	LED ON: Control board is energized								
		I ED RUN: Motor receiving power supply								
		LED FALLET: Elashing displays that a fault has occurred								
	Alphanumeric display	4 lines x 16 characters								
		Keypad with 6 keys to control and configure the drive start and stop/reset								
		Independent memory								
		Average current and 3-phase motor current								
		Average voltage and 3-phase motor voltage								
	Display information	Average input voltage and 3-phase input voltage								
		3-phase input and output frequency								
		Drive Status								
CONTROL		Speed Torque Power Power factor of motor								
DANEL		Register of total and partial drive running time with reset function (hours)								
FANLL		Register of total and partial drive energy consumption with reset function (IW/b)								
		Polar status								
		Digital inputs / PTC status								
		Output comparator status								
		Motor outpad and aguipment status								
		Eault bictory (lot 6 faults)								
	Others	Real time clock								
	Others	Perpetual calendar								
	Certifications	CE, cTick, UL ^[5] , cUL ^[5]								
		EMC Directive (2004/108/CE)								
	Electromagnetic compatibility	IEC/EN 61800-3								
PEGULA-		IEEE 519								
TIONS	Design and construction	LVD Directive (2006/95/CE)								
		IEC/EN 61800-2 General requirements								
		IEC/EN 61800-5-1 Safety								
		IEC/EN 60146-1-1 Semiconductor converters								
		IEC60068-2-6 - Vibration								
	Ever attacked Caffater									
	Functional Safety	IEC/EN 61800-5-2(STO) TUV Rheinland Certified								

NOTES [5] On certification process.



POWER RANGE AT 400VAC

<table-container>rrand regime11</table-container>	400Vca													
FRM equal bype	FRAME		Operation temperature 50°C			DIMENSIONS							Weight (kg)	
Image: bar		CODE	Motor		150%	Wi	dth	De	pth	Heig	ght ^{rij}			
SD7L0005 X62.29414SD7L012 X125.54114 <th></th> <th>Rated</th> <th>power (kW) at 400Vac</th> <th>Overload (A)</th> <th>Drive (WD)</th> <th>Filter (WF)</th> <th>Drive (Dd)</th> <th>Filter (D⊧)</th> <th>Drive (Hd)</th> <th>Filter (H⊧)</th> <th>Drive</th> <th>Filter</th>			Rated	power (kW) at 400Vac	Overload (A)	Drive (WD)	Filter (WF)	Drive (Dd)	Filter (D⊧)	Drive (Hd)	Filter (H⊧)	Drive	Filter	
SD7F-L0009 SX9414SD7F-L012 SX125.518SD7F-L012 SX125.518SD7F-L023 SX321548SD7F-L023 SX321548SD7F-L023 SX321548SD7F-L026 SX603090SD7F-L026 SX603090SD7F-L026 SX7577113SD7F-L026 SX7577173SD7F-L026 SX150755275SD7F-L026 SX150755275SD7F-L026 SX150755275SD7F-L075 SX17522532060838.5440126106SD7F-L075 SX1155551733237624170105SD7F-L075 SX1709022532060838.5440126126160SD7F-L075 SX1709025532736413467126450160SD7F-L026 SX250110315376244071261<7	1	SD7FL0006 5X	6	2.2	9		207	278.6	279	507.6	507.6	15	50	
1 SD7L0018 SX 12 5.5 18 70 278.6 279 507.6<		SD7FL0009 5X	9	4	14									
SD7FL008 SX187.527SD7FL024 SX241136SD7FL025 SX321548SD7FL036 SX3818.557296500328.8394510.38512675SD7FL005 SX663090328.8394510.3851267575SD7FL005 SX753711330.3507358399853.99045105SD7FL005 SX1507522530608438.540124590105SD7FL015 SX17090255320608438.540124590105SD7FL015 SX17090255320608438.540124590105SD7FL0170 SX17090255320608438.54012451206105SD7FL020 SX21011031543140712451206140146SD7FL030 SX330160495120121121121121121SD7FL030 SX330150413122122122121121123123SD7FL030 SX330160495122122122122123123123123123SD7FL030 SX3503559751132124122123123123123123123123		SD7FL0012 5X	12	5.5	18	190								
SD7FL0024 SX241136		SD7FL0018 5X	18	7.5	27									
SD7L0032 5X321548272020200328.839.439.839.881.9202020SD7L0046 5X48227272328.839.0328.839.0328.839.0328.839.0328.839.0328.839.0328.839.0328.839.0328.839.0328.839.0328.839.0328.839.035.0 </td <td></td> <td>SD7FL0024 5X</td> <td>24</td> <td>11</td> <td>36</td> <td></td> <td></td> <td></td> <td></td> <td></td>		SD7FL0024 5X	24	11	36									
2SD7FL003 5X3818.557296500328.8394510.38512675SD7FL0060 5X60300904533711330.4358394365.9850.7100SD7FL000 5X7533711330.475376135.930.4358.8394365.9909674105SD7FL015 5X1155517330.4851438.5438.544012690175SD7FL0210 5X170902255320608438.5440126592160SD7FL0210 5X17090255320608438.5440126592160SD7FL0210 5X17090255320608435.94401265160455SD7FL0210 5X2101100315431407252150411407SD7FL030 5X330160495431814221201407407SD7FL030 5X330160495814221201101121407SD7FL030 5X2503559751132814221201101121SD7FL030 5X6303559751132814221201141SD7FL030 5X94056011861465122201141SD7FL030 5X940126012601260<		SD7FL0032 5X	32	15	48	296	500	328.8	394	510.3	851	26	75	
SD7FL0045 SX482272·iiiiiiiiiiSD7FL0065 SX753711330.030.035.836.835.836.935.836.835.836.935.836.835.836.936.8 <td>2</td> <td>SD7FL0038 5X</td> <td>38</td> <td>18.5</td> <td>57</td>	2	SD7FL0038 5X	38	18.5	57									
3\$tital black bl		SD7FL0048 5X	48	22	72									
SD7FL0075 SX753711330.930.935.839.985.599.967.5105SD7FL015 SX1155517330.935.836.836.936.836.937.936.93		SD7FL0060 5X	60	30	90	300.5		358	390	853.5	990	67.5	100	
SD7FL0909 SX 90 45 135 300 333 330 333 330 5333 900 613 100 SD7FL015 SX 115 55 173 225 320 608 438.5 440 1245 1206 94 175 SD7FL0210 5X 170 90 255 320 300 75 225 320 608 438.5 440 1245 1206 94 175 SD7FL0210 5X 210 110 315 375 431 407 52* 17* 45* 160 SD7FL0330 5X 330 160 495 376 431 407 52* 17* 614* SD7FL0330 5X 330 160 495 368 814 *** 17* 614* SD7FL0460 5X 20 580 315 870 814 *** 10** 10** SD7FL0460 5X 20 650 355 975 1132 121 52* 22** 10** SD7FL030 5X 20 720 400 1080 1260 814 *** 11** 11** SD7FL040 5X 20 900 560 1482 122* 12** 11**	7	SD7FL0075 5X	75	37	113		FOO						105	
\begin{tabular}{ c	3	SD7FL0090 5X	90	45	135		500						110	
\begin{tabular}{ 1 1 1 2 2 1 3 3 1 3 3 1 3 3 1 3 3 1 3 3 1 3		SD7FL0115 5X	115	55	173								110	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	4	SD7FL0150 5X	150	75	225	700	608	438.5	440	1245	1206	0.4	175	
SD7FL0210 5X21011031543140752917124450SD7FL0250 5X2501323754314075291712450SD7FL0275 5X2751504134075291712460SD7FL0330 5X3301604954075291712614SD7FL0460 5X 204602506907868142000873SD7FL0505 5X 20650355975113212215292000873SD7FL0505 5X 206503559751132122152920001236SD7FL025 5X 206503559751132122152920001236SD7FL0305 5X 206503559751132122152920001236SD7FL0460 5X 206503559751132122152920001457SD7FL090 5X 2099056014851482122152920001457SD7FL140 5X 20115063017252342235220001457SD7FL140 5X 20158090023703402243220372937SD7FL1800 5X 20158090023703402243224924920003007SD7FL1800 5X 201800100027003402244224924920003429SD7FL1800 5X 2018001000270034022442249	4	SD7FL0170 5X	170	90	255	520						94	180	
5SD7FL0250 SX2501323754314075291712450SD7FL0275 SX275150413460SD7FL0330 SX330160495614SD7FL0305 XX370200555766814619SD7FL0460 SX204602000555690814-01037649SD7FL0505 X20580315870-8141037SD7FL0505 X206503559751221220012361037SD7FL025 X207204001080-814-107SD7FL080 SX208404501260814-1412SD7FL090 SX2099056014851457SD7FL180 SX201150630172520001457SD7FL180 SX2014007101890237020001457SD7FL180 SX201580900237020002017SD7FL180 SX2018001000270033002000307SD7FL180 SX201800100027002001307SD7FL180 SX201800100027002001307SD7FL180 SX2018		SD7FL0210 5X	210	110	315		407	529		1712		425		
SD7FL0275 SX275150413··· </td <td>5</td> <td>SD7FL0250 5X</td> <td>250</td> <td>132</td> <td>375</td> <td>431</td> <td colspan="2">450</td>	5	SD7FL0250 5X	250	132	375	431						450		
SD7FL0330 5X330160495A07A075291712614SD7FL0370 5X3702005557868142000873SD7FL0580 5X 204602506908142000873SD7FL0580 5X 205803158701132121152920001037SD7FL0720 5X 206503559751132121152920001236SD7FL020 5X 20720400108081410071107SD7FL030 5X 2092550013881482121152920001457SD7FL090 5X 2092550013881482122152920001457SD7FL150 5X 2011506301725A04A04180021601492SD7FL1260 5X 2012607101890237030220002171SD7FL180 5X 20158090023703402203520002171SD7FL180 5X 201800100027003402203520002037SD7FL180 5X 20180010002700340224422937300711SD7FL2200 5X 202200120033002442244228492000342911SD7FL2500 5X 202500140037502442284929423953		SD7FL0275 5X	275	150	413							460		
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SD7FL0460 5X 2046025066908142000873SD7FL0580 5X 205803158708708141037SD7FL0650 5X 20650355975113212152920001236SD7FL0720 5X 2072040001080814122152920001236SD7FL0925 5X 2092550013881482121152920001457SD7FL0990 5X 209905601485126070014921492SD7FL150 5X 2011506301725700700189023707002111SD7FL1260 5X 20126071018902370703200021712121SD7FL1440 5X 201440800216070370370320002171SD7FL1800 5X 20180010002700340270370370370311SD7FL200 5X 202000120033007432442709700342911SD7FL200 5X 2020001400375024422849709700342911SD7FL200 5X 2025001400375044522442709700342911SD7FL200 5X 2025001400375024422849709700342911SD7FL200 5X 2025001400375024422849709700342911SD7FL200 5X 20<	6	SD7FL0370 5X	370	200	555		407					649		
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$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		SD7FL0580 5X 20	580	315	870		814	529		2000		1037		
$ \begin{array}{ c c c c c c } \hline \begin{tabular}{ c c c c } \hline $107 \\ \hline $107 \\$	7	SD7FL0650 5X 20	650	355	975	1132	1221					1236		
$ \begin{array}{ c c c c c c c } & 8 & 8 & 8 & 9 & 9 & 9 & 9 & 9 & 9 & 9$		SD7FL0720 5X 20	720	400	1080		814					1107		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		SD7FL0840 5X 20	840	450	1260		1221	529		2000		1412		
$ \begin{array}{ c c c c c c c } \hline SD7FL0990 SX 20 & 990 & 560 & 1485 & & & & & & & & & & & & & & & & & & &$	8	SD7FL0925 5X 20	925	500	1388	1482						1457		
SD7FL1150 5X 20 1150 630 1725 Andress and the second secon		SD7FL0990 5X 20	990	560	1485							1492		
9 SD7FL1260 5X 20 1260 710 1890 2352 1628 529 2000 2171 SD7FL1440 5X 20 1440 800 2160 2261 2261 2261 10 SD7FL1580 5X 20 1580 900 2370 3402 2035 529 2000 2007 3007 10 SD7FL200 5X 20 1800 1000 2700 3402 2422 529 2000 3007 11 SD7FL200 5X 20 2200 1200 3300 4452 2849 529 2000 3429 307FL2500 5X 20 2500 1400 3750 4452 2849 529 2000 3429		SD7FL1150 5X 20	1150	630	1725	2352		529		2000		2121		
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SD7FL1800 5X 20 1800 1000 2700 3402 2035 529 2000 3007 11 SD7FL2200 5X 20 2200 1200 3300 4452 2442 529 2000 3402 3007 11 SD7FL2500 5X 20 2500 1400 3750 4452 2849 529 2000 3429 3429	10	SD7FL1580 5X 20	1580	900	2370	3402	2035	529		2000		2937		
Image: SD7FL2200 5X 20 2200 1200 3300 2442 2849 2000 3429 SD7FL2500 5X 20 2500 1400 3750 2442 2849 2000 3953		SD7FL1800 5X 20	1800	1000	2700							3007		
II SD7FL2500 5X 20 2500 1400 3750 4452 2849 529 2000 3953	11	SD7FL2200 5X 20	2200	1200	3300	4.450	2442	529		2000		3429		
		SD7FL2500 5X 20	2500	1400	3750	4452	2849					3953		

NOTE [1] Available optional plinths for frames 5 to 11, 2000mm and 2200mm total height.



POWER RANGE AT 690VAC

690Vca													
FRAME	CODE	Operation temperature 50°C			DIMENSIONS							Weight (kg)	
		I(A) Rated	Motor power (kW) at 690Vac	150% Overload (A)	Width		Depth		Height ^[1]				
					Drive (WD)	Filter (WF)	Drive (D⊳)	Filter (DF)	Drive (Hd)	Filter (H⊧)	Drive	Filter	
	SD7FL0052 6X	52	45	78	300.5	-	358 <mark>-</mark> 390	-	0E7 E	-	67.5	-	
A[1]	SD7FL0062 6X	62	55	93		500		390	000.0	990		128	
4	SD7FL0080 6X	80	75	120	700	608	438.5	440	1245	1206	94	128	
	SD7FL0105 6X	105	90	157	520							185	
	SD7FL0130 6X	130	110	195		407	529		1712		413		
5	SD7FL0150 6X	150	132	225	431						550		
	SD7FL0170 6X	170	160	255							560		
	SD7FL0210 6X	210	200	315		407	529		1712		724		
6	SD7FL0260 6X 20	260	250	390	786	014			2000		1073		
	SD7FL0320 6X 20	320	315	480	014				2000		1093		
7	SD7FL0385 6X 20	385	355	578	1172	814	529		2000		1247		
/	SD7FL0460 6X 20	460	450	690	1152	1221					1606		
8	SD7FL0550 6X 20	550	500	825	1/182	1221	529		2000		1732		
0	SD7FL0660 6X 20	660	630	990	1402	1628					2101		
	SD7FL0750 6X 20	750	710	1125		1628	529		2000		2541		
9	SD7FL0840 6X 20	840	800	1260	2352						2561		
	SD7FL0950 6X 20	950	900	1425		2035					2930		
10	SD7FL1140 6X 20	1140	1000	1710		2035	529		2000		3382		
	SD7FL1270 6X 20	1270	1200	1905	3402	2442					3771		
	SD7FL1420 6X 20	1420	1400	2130	2849						4160		
11	SD7FL1500 6X 20	1500	1500	2250	1152	3256	529		2000		4847		
	SD7FL1800 6X 20	1800	1800	2700	4432	3663					5256		

NOTES

Dimensions and weights not indicated upon request.
 Available optional plinths for frames 5 to 11, 2000 and 2200 total height.





FILTERS

