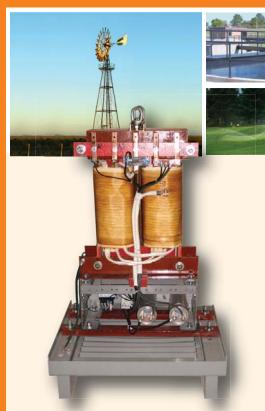
LINEATOR TM 1Q3 Single Phase Universal Harmonic Filter





- Treats all major harmonics generated by 3-phase Variable Frequency Drives when fed by 1-phase power (3rd, 5th, 7th, 9th, 11th, 13th ...)
- Easily applied at the ASD input
- Helps meet IEEE 519 standard for both current and voltage distortion
- Input current demand distortion
 12% over entire operating range (10x reduction)
- Will not resonate with other power system components or attract line side harmonics
- Suppresses overvoltages caused by capacitor switching and other fast changing loads
- Built-in capacitor bank switching contactor to prevent ASD overvoltages at light loads





The only passive harmonic filter for 3-phase Adjustable Speed Drives operating on 1-phase supply

Standard 3-phase Adjustable Speed Drives (ASD) are often used as phase converters to supply 3-phase motors when only 1-phase power is available. This is common practice in remote locations such as farms, golf courses, oil and gas fields as well as residential areas for water and waste water systems. In these applications the ASD recifiers generate much higher input current harmonic distortion when used on single phase supply.

The Lineator- $1Q3^{TM}$ has been designed to address the problems associated with single phase supply on 3-phase ASD's. This is achieved by accepting 1-phase input and supplying a quasi 3-phase supply to the ASD. This will significantly lower both input harmonic current distortion (by up to 10x) and DC ripple current within the ASD.

Reducing the ripple current when using a Lineator-1Q3[™] may allow for less derating of the ASD. Since most drive manufacturers recommend you double the size of the ASD to the load on single phase supplies. Less derating can reduce the overall cost of your system.



General Specifications:

HP / kW RATING

Available for motor/drive system sizes up to 150HP / 110kW

VOLTAGE

Standard voltages up to 600V

FREQUENC

60Hz (50Hz available)

HARMONICS TREATED

3rd, 5th, 7th, 9th,11th, 13th,...

K-FACTOR SUITABILITY

Up to 20

INPUT K-FACTOR

Reduced to < 1.5

INPUT CURRENT DISTORTION

< 12% @ Full Load

EFFICIENCY

> 99%

ELEVATION

≤ 3300ft [1000m] above sea level

AMBIENT TEMPERATURE

≤ 104 Deg F [40 Deg C]

VENTILATION

Convection air cooled

WINDING MATERIAL

Copper

ENCLOSURE

NEMA 3R Grey (SU2 & 3 suitable for Wall Mount)

OPTIONS

Nema 3R Enhanced

* All LINEATOR 1Q3 units are shipped complete with a capacitor bank switching contactor and control system that automatically switches the filter capacitors off whenever the VFD is in the idle-no load ready-to-run mode.

Typical Application

1-phase supply and excess ripple current requires drive derating of 2x



Vthd = 5.8%

at input of VFD

Ithd = 109%

Balanced 1-phase, 2-wire 3-phase, 3-wire 3-wire 480V, 40A

1Q3 reduces ripple current which may allow for less derating when approved by VFD manufacturer



Vthd = 2.0%

at input of 1Q3



Ithd = 9.8%

[†]ASD de-rating must be approved by drive manufacturer.

ORDERING INFORMATION

	-									
Model	Motor Horsepower		Line Voltage	Frequency		су	Load Type	Enclosure Type	Optional	
SUHF -	HP	_	VVV	-	Hz	_	L	- En -	0	
Single Phase Universal Harmonic Filter	5 to 150		240 480 600 (VAC)		60		D Diode Bridge Rectifier T hyristor Bridge Rectifier	E0P No Enclosure E1 Nema 3R Ventilated	E Nema 3R Enhanced	

DIMENSIONS

(Case Style	H in.[mm]	W in.[mm]	D in.[mm]	Mtg. Hole Center W	Mtg. Hole Center D
	SU2	29.50 [749]	10.25 [260]	12.75 [324]	11.00 [279]	10.00 [254]
	SU3	34.00 [864]	13.25 [336]	16.00 [406]	18.00 [457]	13.00 [330]
	SU4	40.00 [1016]	18.50 [470]	23.00 [584]	20.00 [508]	20.00 [508]
	MT3	45.00 [1143]	26.00 [661]	25.00 [635]	21.50 [546]	19.00 [483]
	MT4	51.50 [1308]	32.00 [813]	29.50 [749]	23.50 [597]	23.50 [597]

Motor Size		Lineator Rating			240V (60Hz)				480V (60Hz)				600V (60Hz)				
HP kW			Input Amps			Standard Enclosure		Enhanced Enclosure		Standard Enclosure		Enhanced Enclosure		Standard Enclosure		Enhanced Enclosure	
		(1ph/60Hz)		Output Case		Weight ^[1]	Case	Weight ^[1]	Case	Weight ^[1]	Case	Weight ^[1]	Case	Weight ^[1]	Case	Weight ^[1]	
		240VAC	480VAC	600VAC	kVA	Style	lbs [kg]	Style	lbs [kg]	Style	lbs [kg]	Style	lbs [kg]	Style	lbs [kg]	Style	lbs [kg]
5	4	23	12	9	7.5		81 [37]		84 [38]	5 [44] 4 [52]	74 [34]	SU2-E	77 [35]	SU2	71 [32]	SU2-E	74 [33]
7.5	5.5	33	17	13	11	SU2	93 [42]	SU2-E	96 [44]		84 [38]		87 [39]		80 [36]		83 [38]
10	7.5	45	23	18	14		111 [50]	1	114 [52]		99 [45]		102 [46]		94 [42]		97 [44]
15	11	68	34	26	20		159 [72]		165 [75]		119 [54]		122 [55]		112 [51]		115 [52]
20	15	90	45	35	27	SU3	189 [86]		195 [88]	168 [76]		174 [79]		158 [72]		164 [75]	
25	18.5	111	56	44	34		213 [97]	SU3-E	219 [99]	SU3	188 [85]	SU3-E	194 [88]	SU3	177 [80]	SU3-E	183 [83]
30	22	137	68	52	40		273 [124]		279 [127]		238 [108]		244 [111]		222 [101]		228 [103]
40	30	180	90	70	51		333 [151]		339 [154]		288 [131]		294 [133]		268 [121]		274 [124]
50	37.5	202	110	87	63		389 [176]		397 [180]		318 [144]		324 [147]		295 [134]		301 [136]
60	45	255	130	105	75	SU4	413 [187]	SU4-E	421 [191]	SU4	358 [162]	SU4-E	366 [166]	1 1	333 [151]	SU4-E	341 [155]
75	55	300	152	130	93		461 [209]		469 [213]		398 [180]		406 [184]		369 [168]		377 [171]
100	75	420	210	175	118	MT3	563 [255] 659 [299] MT3-E	593 [269]		458 [208]		466 [211]		424 [192]		432 [196]	
125	90	520	260	220	145	IVI I 3		IVII 3-E	689 [312]	МТ3	568 [258]	МТЗ-Е	598 [271]	МТО	527 [239]	МТ3-Е	557 [252]
150	110	590	295	260	175	MT4	847 [384]	MT4-E	884 [401]		688 [312]		718 [326]	MT3	636 [288]		666 [302]

1. Approximate Values











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