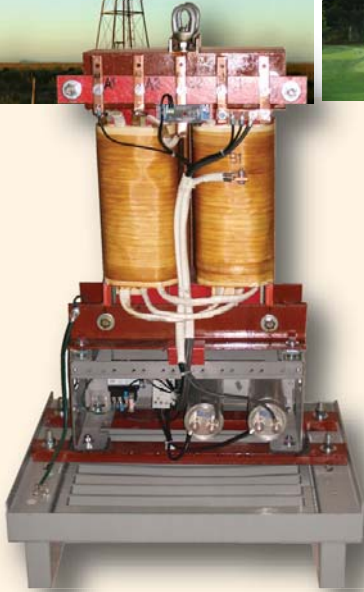


LINEATOR™ 1Q3 Single Phase Universal Harmonic Filter



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

Key Features

- 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

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 rectifiers generate much higher input current harmonic distortion when used on single phase supply.

The Lineator-1Q3™ 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

FREQUENCY

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

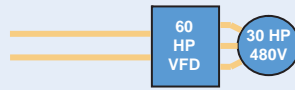
NEMA 3R Grey
(SU2 & 3 suitable for Wall Mount)

OPTIONS

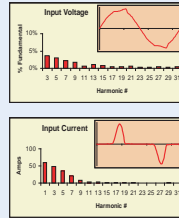
Nema 3R Enhanced

* 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

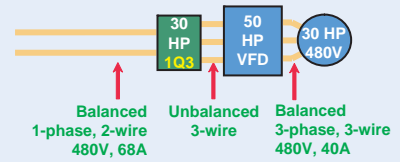


Vthd = 5.8%

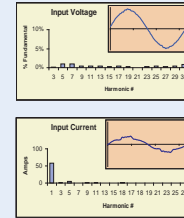
at input of VFD

Ithd = 109%

Application with Lineator-1Q3™



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	Load Type	Enclosure Type	Optional
SUHF - HP - VVV - Hz - L - En - O						
Single Phase	5	240	60	D	E0P	E
Universal	to	480		Diode Bridge Rectifier	No Enclosure	Nema 3R Enhanced
Harmonic Filter	150	600 (VAC)		T	E1	
				Thyristor Bridge Rectifier	Nema 3R Ventilated	

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 (1ph/60Hz)					Standard Enclosure		Enhanced Enclosure		Standard Enclosure		Enhanced Enclosure		Standard Enclosure		Enhanced Enclosure	
		240VAC	480VAC	600VAC	Output kVA		Case Style	Weight ⁽¹⁾ lbs [kg]	Case Style	Weight ⁽¹⁾ lbs [kg]	Case Style	Weight ⁽¹⁾ lbs [kg]	Case Style	Weight ⁽¹⁾ lbs [kg]	Case Style	Weight ⁽¹⁾ lbs [kg]	Case Style	Weight ⁽¹⁾ lbs [kg]
5	4	23	12	9	7.5	SU2		81 [37]	SU2-E	84 [38]	SU2	74 [34]	SU2-E	77 [35]	SU2	71 [32]	SU2-E	74 [33]
7.5	5.5	33	17	13	11			93 [42]		96 [44]		84 [38]		87 [39]		80 [36]		83 [38]
10	7.5	45	23	18	14			111 [50]		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]	SU3-E	195 [88]	SU3	168 [76]	SU3-E	174 [79]	SU3	158 [72]	SU3-E	164 [75]
25	18.5	111	56	44	34			213 [97]		219 [99]		188 [85]		194 [88]		177 [80]		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	SU4		389 [176]	SU4-E	397 [180]	SU4	318 [144]	SU4-E	324 [147]	SU4	295 [134]	SU4-E	301 [136]
60	45	255	130	105	75			413 [187]		421 [191]		358 [162]		366 [166]		333 [151]		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			563 [255]		593 [269]		458 [208]		466 [211]		424 [192]		432 [196]
125	90	520	260	220	145	MT3		659 [299]	MT3-E	689 [312]	MT3	568 [258]	MT3-E	598 [271]	MT3	527 [239]	MT3-E	557 [252]
150	110	590	295	260	175			847 [384]		884 [401]		688 [312]		718 [326]		636 [288]		666 [302]

1. Approximate Values



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SUHF-PS01-A7
Effective: February 2013

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