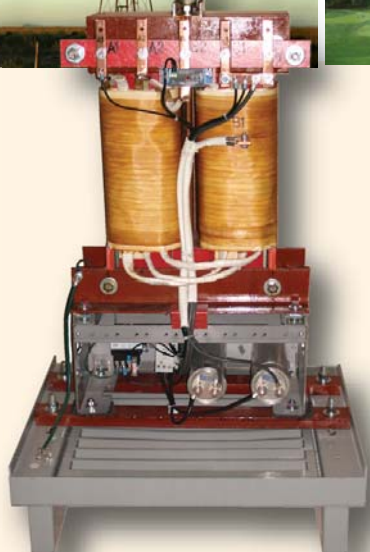


LINEATOR™ 1Q3 Single Phase Universal Harmonic Filter



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 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.

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



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%

Ithd = 109%

at input of VFD

Application with Lineator-1Q3™

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

Vthd = 2.0%

Ithd = 9.8%

at input of 1Q3

† 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	Nema 3R Ventilated	
				Thyristor Bridge Rectifier		

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)			Output kVA	Standard Enclosure		Enhanced Enclosure		Standard Enclosure		Enhanced Enclosure		Standard Enclosure		Enhanced Enclosure		
		240VAC	480VAC	600VAC		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	SU3	111 [50]	SU3-E	114 [52]	SU3	99 [45]	SU3-E	102 [46]	SU3	94 [42]	SU3-E	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	SU4	189 [86]	SU4-E	195 [88]	SU4	168 [76]	SU4-E	174 [79]	SU4	158 [72]	SU4-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	MT3	273 [124]	MT3-E	279 [127]	MT3	238 [108]	MT3-E	244 [111]	MT3	222 [101]	MT3-E	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	MT4	389 [176]	MT4-E	397 [180]	MT4	318 [144]	MT4-E	324 [147]	MT4	295 [134]	MT4-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	MT3	461 [209]	MT3-E	469 [213]	MT3	398 [180]	MT3-E	406 [184]	MT3	369 [168]	MT3-E	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	MT4	659 [299]	MT4-E	689 [312]	MT4	568 [258]	MT4-E	598 [271]	MT4	527 [239]	MT4-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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