



Low Voltage Systems

12V AC REMOTE MOUNT MAGNETIC TRANSFORMERS MAGXFMR

Project: _____

Fixture Type: _____

Location: _____

Contact/Phone: _____

PRODUCT DESCRIPTION

12VAC Remote Mount Magnetic Transformers are designed to be installed in remote locations such as basements, attics, plenums and electrical closets. The location must be accessible and well ventilated with ambient temperatures below 140°F. They are available with maximum wattage ratings of up to 600W and are available in 1-circuit and 2-circuit configurations, enabling two separate feeds to be made from the same transformer. These transformers are designed for either 120-volt or 277-volt input, and have premium resettable magnetic circuit breakers, dual-tap standard/boost tap primary input leads to adjust for voltage drop and may be dimmed using dimmers qualified by Juno. Transformers may be used to operate 12VAC LED or incandescent loads.

PRODUCT SPECIFICATIONS

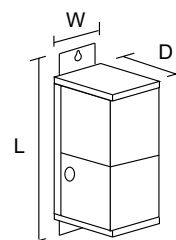
Electrical 120VAC or 277VAC input • 12V AC output • May be used to operate LED or incandescent loads.

Load Ratings 20W versions rated for 0.5-20 watts for incandescent or LED loads • 40W versions rated for 0.5-40 watts for incandescent or LED loads • 75W versions rated for 0.5-75 watts for incandescent or LED loads • 150W versions rated for 50-150 watts for incandescent loads, 75-150 watts for LED loads • 240W versions rated for 120-240 watts for incandescent or LED loads • 300W versions rated for 150-300 watts for incandescent or LED loads • 480W versions contain two 240VA circuits, each rated for 120-240 watts for incandescent or LED loads • 600W versions contain two 300VA circuits, each rated for 150-300 watts for incandescent or LED loads.

Construction Potted core and coil • 13 volt boost tap • Thermally protected primary • Manually resettable, fast-acting magnetic circuit breaker on secondary • Primary and secondary circuits physically and electrically isolated.

Circuit Breaker Resettable magnetic circuit breaker • Provides faster short circuit protection than standard thermal circuit breakers • Provides overload protection which is unaffected by ambient operating conditions • Eliminates false overload failures due to elevated ambient temperatures which can occur with thermal circuit breakers • Enables transformer to be mounted in any position.

DIMENSIONS



TRANSFORMER DIMENSIONS

Type	Length (L)	Width (W)	Depth (D)
1-Circuit	10-3/4"	4-3/8"	4-1/8"
2-Circuit	11-3/8"	5-3/8"	5-1/8"

Dimming 120V installations only – consult factory for 277V dimming applications • Incandescent loads can be dimmed with high quality dimmers designed specifically for use with magnetic transformer • LED loads may be dimmed using only dimmers that have been tested and qualified by Juno for use with Juno LED fixtures including: Lutron Diva DVLV-600P, Lutron Nova NLV-600, Lutron Ceana CNLV-600P, Lutron Skylark SLV-600P – consult factory to confirm compatibility of other dimmers prior to installation with Juno LED fixtures.

Installation Easy access front located wiring compartment • Wire nut or terminal block wiring connections for simple, fast installation • Operate in accessible locations with ambient temperatures below 140° F.

Labels UL/CUL listed • New York City Approved • 300VA and 600VA versions are compatible only with systems rated for 25-Amp operation.

Specifications subject to change without notice.

ORDERING INFORMATION

Ordering Example: MAGXFMR 1C 300W 120 12AC BL

Series	Number of Circuits	Wattage	Input Voltage	Output Voltage	Factory Installed Options	Finish
MAGXFMR Remote Magnetic Transformer	1C 1-Circuit 2C 2-Circuit ¹	20W 20 Watts	120 120VAC 277 277VAC ³	12AC 12VAC	6CP 6FT Cord & Plug ⁴	BL Black
		40W 40 Watts				
		75W 75 Watts				
		150W 150 Watts				
		240W 240 Watts				
		300W 300 Watts				
		480W 480 Watts ²				
		600W 600 Watts ²				

¹ 2-circuit option available only with 480 Watt and 600 Watt versions.

² 480 Watt and 600 Watt versions only available with 2-circuit option.

³ 277VAC option only available with 20W, 40W, 75W, 150W, 240W, 300W, 600W versions.

⁴ 6CP option only available with 120VAC versions, and only on 20W, 40W, 75W and 300W versions. Availability of MAGXFMR with 6CP may be limited.



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APPLICATION

Consideration	12V Magnetic Transformer	12V Electronic Driver/Transformer
• Trac run length	• Use for medium to long run lengths and medium to high wattage systems	• Use for short to medium run lengths and low to medium wattage systems
• Dimming	• For optimal results, use dimmers specifically designed for use with magnetic transformers; transformers used with Juno LED fixtures should only be operated with dimmers pre-qualified for suitability by Juno Engineering	• For optimal results, use dimmers specifically designed for use with electronic transformers; transformers used with Juno LED fixtures should only be operated with dimmers pre-qualified for suitability by Juno Engineering
• Transformer Location	• Install in well ventilated locations where ambient temperature will not exceed 140°F (60°C); transformers must be accessible	• Install surface mount units in well-ventilated location where ambient temperature will not exceed 120°F (50°C)

VOLTAGE DROP CALCULATIONS (FOR MAGNETIC TRANSFORMERS)

Voltage drop is a function of the following factors:

Wire Length:

As the wire length from the supply to the fixture becomes longer, voltage drop increases.

Wire Diameter:

As the wire cross-sectional area becomes smaller, voltage drop increases (this is related to the resistance per foot of wire).

Amperage of the Electrical Load:

As the amperage of the electrical load increases, voltage drop also increases.

Voltage drop in 12 volt systems is 10 times greater than in 120 volt systems.

This is because a load of the same wattage has 10 times greater amperage in 12 volts as compared to 120 volts.

This is illustrated by the formula:

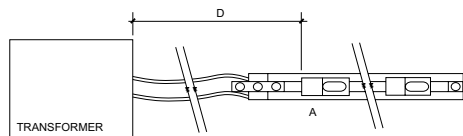
$$\text{WATTS} = \text{VOLTS} \times \text{AMPS}$$

Assuming a 120 watt electrical load:

$$120 \text{ WATTS} = 12 \text{ VOLTS} \times \underline{10 \text{ AMPS}}$$

$$120 \text{ WATTS} = 120 \text{ VOLTS} \times \underline{1 \text{ AMP}}$$

Voltage drop from a magnetic transformer to the first lampholder on 12V Trac 12 can be calculated as follows:



$$\text{VOLTAGE DROP} = 2D \times A \times \Omega$$

WHERE:

D = Distance in feet from transformer to 1st lamp

A = Total amperage load of all lampholders on the trac

$$\left(A = \frac{\text{WATTS}}{\text{VOLTS}} = \frac{\text{WATTS}}{12} \right)$$

Ω = Resistance per foot of wire per the following chart:

Wire Gauge	Resistance Per Foot of Wire (OHMS)
#8	.00065
#10	.00104
#12	.00166

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12V VOLTAGE DROP INFORMATION (for 75VA Remote Mount Magnetic Transformers)

Table predicting voltage at first lamp for various wire lengths, gauges, inputs and loads

Distance from Transformer to First Fixture	STANDARD TAP						BOOST TAP			
	12V, 6.3A, 75W		12V, 3.3A, 45W		12V, 1.7A, 20W		12V, 6.3A, 75W		12V, 3.3A, 40W	
	#12	#10	#12	#10	#12	#10	#12	#10	#12	#10
5'	11.53	11.56	11.71	11.73	11.89	11.90	12.18	12.21	12.43	12.46
10'	11.46	11.51	11.66	11.70	11.87	11.88	12.09	12.15	12.37	12.43
15'	11.39	11.47	11.62	11.67	11.85	11.87	12.00	12.10	12.31	12.39
20'	11.31	11.42	11.57	11.64	11.83	11.86	11.91	12.04	12.26	12.35
25'	11.24	11.38	11.53	11.61	11.81	11.85	11.82	11.99	12.20	12.32
30'	11.17	11.33	11.48	11.58	11.79	11.83	11.73	11.93	12.14	12.28
40'	11.03	11.24	11.39	11.52	11.75	11.81	11.56	11.82	12.03	12.21
50'	10.95	11.20	11.34	11.49	11.73	11.79	11.47	11.76	11.97	12.17
60'	10.67	11.02	11.16	11.38	11.65	11.74	11.11	11.54	11.74	12.03
80'	10.52	10.92	11.05	11.31	11.58	11.69	10.93	11.43	11.63	11.95
100'	10.17	10.70	10.84	11.18	11.51	11.65	10.49	11.15	11.34	11.77

12V VOLTAGE DROP INFORMATION (for 150VA Remote Mount Magnetic Transformers)

Table predicting voltage at first lamp for various wire lengths, gauges, inputs and loads

Distance from Transformer to First Fixture	STANDARD TAP				BOOST TAP			
	12V, 12.5A, 150W		12V, 6.25A, 75W		12V, 12.5A, 150W		12V, 6.25A, 75W	
	#12	#10	#12	#10	#12	#10	#12	#10
5'	11.22	11.29	12.04	12.08	12.02	12.09	12.86	12.92
10'	11.04	11.18	11.94	12.01	11.83	11.97	12.73	12.85
15'	10.86	11.07	11.84	11.95	11.65	11.86	12.61	12.79
20'	10.68	10.96	11.74	11.89	11.46	11.74	12.48	12.72
25'	10.50	10.85	11.64	11.82	11.28	11.63	12.36	12.66
30'	10.32	10.74	11.54	11.86	11.09	11.51	12.23	12.59
40'	9.96	10.52	11.34	11.63	10.72	11.28	11.98	12.46
50'	9.60	10.30	11.14	11.51	10.35	11.05	11.73	12.33
60'	9.24	10.08	10.94	11.38	9.98	10.82	11.48	12.20
80'	8.52	9.64	10.54	11.12	9.24	10.36	10.98	11.94
100'	7.80	9.20	10.14	10.87	8.50	9.90	10.48	11.68
120'	7.08	8.76	9.74	10.62	7.76	9.44	9.98	11.42
140'	6.36	8.32	9.34	10.36	7.02	8.98	9.48	11.16

The shaded areas represent the suggested operating range of 11.0 to 12.0 volts at the first lamp on the trac. Juno suggests that the voltage measured at the first lamp be between 11.0 and 11.8 volts for 12V incandescent lamps and between 11.4 and 12.0 volts for 12V LED fixtures. Do not exceed 12 volts. A voltmeter should be used to confirm that the proper voltage is present.

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12V VOLTAGE DROP INFORMATION (for 240VA Remote Mount Magnetic Transformers)

Table predicting voltage at first lamp for various wire lengths, gauges, inputs and loads

Distance from Transformer to First Fixture	STANDARD TAP				BOOST TAP			
	12V, 20A, 240W		12V, 10A, 120W		12V, 20A, 240W		12V, 10A, 120W	
	#12	#10	#12	#10	#12	#10	#12	#10
5'	11.66	11.79	12.19	12.27	12.46	12.59	13.09	13.17
10'	11.33	11.58	11.98	12.14	12.13	12.38	12.88	13.04
15'	11.00	11.37	11.77	12.01	11.80	12.17	12.67	12.91
20'	10.67	11.16	11.57	11.88	11.47	11.96	12.47	12.78
25'	10.34	10.96	11.36	11.75	11.14	11.76	12.26	12.65
30'	10.00	10.75	11.15	11.62	10.80	11.55	12.05	12.52
40'	9.34	10.33	10.74	11.36	10.14	11.13	11.64	12.26
45'	9.01	10.12	10.53	11.23	9.81	10.92	11.43	12.13
65'	7.68	9.29	9.70	10.71	8.48	10.96	10.60	11.61
75'	7.02	8.88	9.28	10.45	7.82	9.68	10.18	11.35
110'	4.69	7.42	7.83	6.54	5.49	8.22	8.73	10.44

12V VOLTAGE DROP INFORMATION (for 300VA Remote Mount Magnetic Transformers)

Table predicting voltage at first lamp for various wire lengths, gauges, inputs and loads

Distance from Transformer to First Fixture	STANDARD TAP				BOOST TAP			
	12V, 25A, 300W		12V, 12.5A, 150W		12V, 25A, 300W		12V, 12.5A, 150W	
	#10	#8	#10	#8	#10	#8	#10	#8
5'	11.74	11.85	12.27	12.32	12.54	12.65	13.17	13.23
10'	11.22	11.56	12.01	12.18	12.20	12.36	12.91	13.08
20'	10.96	11.42	11.88	12.11	11.76	12.22	12.78	13.01
30'	10.44	11.13	11.62	11.96	11.24	11.93	12.52	12.86
40'	9.92	10.83	11.36	11.82	10.72	11.63	12.26	12.72
50'	9.40	10.54	11.10	11.67	10.20	11.34	12.00	12.57
60'	8.88	10.28	10.84	11.52	9.68	11.05	11.74	12.43
70'	8.36	9.96	10.58	11.37	9.16	10.76	11.48	12.28
80'	7.80	9.67	10.32	11.23	8.64	10.47	11.22	12.13
100'	6.80	9.09	9.80	10.94	7.60	9.89	10.70	11.80
150'	4.20	7.63	8.50	10.21	5.00	8.43	9.40	11.11

The shaded areas represent the suggested operating range of 11.0 to 12.0 volts at the first lamp on the trac. Juno suggests that the voltage measured at the first lamp be between 11.0 and 11.8 volts for 12V incandescent lamps and between 11.4 and 12.0 volts for 12V LED fixtures. Do not exceed 12 volts. A voltmeter should be used to confirm that the proper voltage is present.