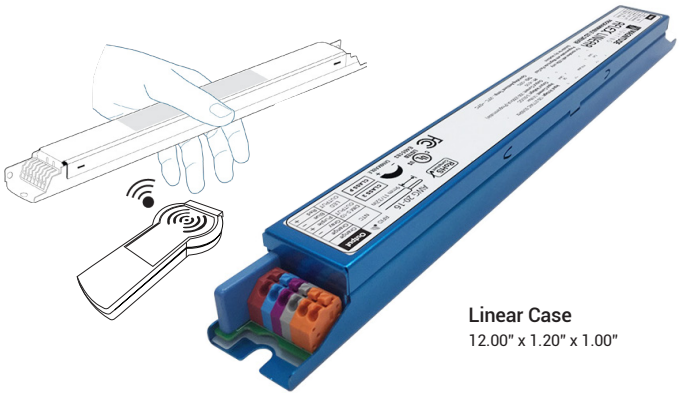
AFLEX SERIES
LINEAR

Constant Current Electronic
0-10V Dimmable Programmable LED Driver

P/N: AFLEX-

The AFLEX Linear platform offers the unparalleled ability to program the drivers power in addition to the output current, dimming curve, dim-to-off functionality, NTC settings and more all while maintaining high efficiency over the programmable range. This unique technological advancement enables both ultimate design flexibility and significant SKU elimination. Programming the driver does not require any power and can be done in less than one second. The available auxiliary output provides a power source for sensors and/or cooling devices, eliminating the need for an additional power supply. The AFLEX driver is dimmable down to 0.1% with a 0-10V dimmer. Unequaled flexibility and performance along with Class P approval and Title 24 compliance makes the AFLEX driver the perfect choice for any commercial lighting fixture application. Title 24 compliance is dependant on dimmer luminaire combination.



Linear Case
12.00" x 1.20" x 1.00"

DIMMABLE | DIM DOWN TO 0.1% | 120 - 277VAC | 100 - 2000mA | CLASS 2 | IP40 | cULus LISTED | CLASS P | PROGRAMMABLE | RoHS Compliant | TITLE 24 CA Compliant

Installation: Terminal Blocks with Side Feed
Driver Type: Class 2 Single Channel
Dimming: 0-10V Dimmable Down to 0.1% with Dim-to-Off Capability
Input Voltage: Universal 120VAC to 277VAC, 50/60Hz
Output Voltage: 3 - 57VDC
Output Current: 100 - 2000mA (1mA Step Programmable)
Environmental: Dry
IP Rating: IP40
Listing: UL Listed, Class P, Class 2
Certifications: UL8750 | CSA C22.2 No. 250.13-17
Warranty: 5-Year warranty

Wireless Programmable Features
- Programmable Power 30 to 100W
- Output Current (1mA Step Programmable)
- Dimming Curve (Linear / Logarithmic)
- Dim-to-Off (On / Off)
- NTC Settings

PROGRAMMABLE

AFLEX SERIES is also available in:
- **AFLEX Compact**
- **JB SERIES**

Refer to Magnitudeinc.com for more details.

Ordering Guide Default: AFLEX-100W-1650-L-LE

AFLEX – W – – L –

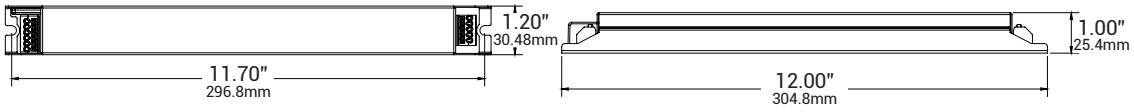
TYPE	MAX POWER	OUTPUT CURRENT	CASE STYLE	DIMMING CURVE	AUX POWER OPTION
AFLEX – *AFLEX*	**30 to 100W** – *30 to 100W Programmable*	*100 to 2000mA*	*Linear Enclosure Only*	**L** – *Linear (Std)*	*12V PS and 57V Output (Std)*
AFLEX – AFLEX	**30W** – 30W	**100-1650** – 100-1650mA (3-57VDC)	**L**[1] – Linear enclosure	**G** – Logarithmic	**E**[1] – 12V PS and 57V Output
	40W – 40W			**L**[1] – Linear	**F** – 24V PS and 57V Output
	50W – 50W	**100-2000** – 100-2000mA (3-50VDC)			**G** – No PS and 57V Output
	60W – 60W				**B** – 12V PS and 50V Output
	75W – 75W				**C** – 24V PS and 50V Output
	100W – 100W				**D** – No PS and 50V Output

[1]*Default Setting Unless Specified Otherwise*

PROGRAMMABLE
Pre-Programmed per Chosen Specification

Programming Requires FlexTool Wireless Programmer

DIMENSIONS	
LENGTH	12.00" (304.8mm)
WIDTH	1.20" (30.48mm)
HEIGHT	1.00" (25.4mm)



14711 Bentley Circle. Tustin, CA 92780
Customer Service: (714) 312-5080 Fax: (714) 312-5070
Customercare@magnitudeinc.com
www.MagnitudeInc.com

Specifications - 1650mA Max Version

INPUT	
Input Voltage Range	120 - 277VAC ± 10%
Input Frequency	50 / 60Hz
Input Current	0.8A@120VAC / 0.4A@277VAC*
Inrush Current	38A Max
Efficiency	> 88% *
Power Factor	0.99@120VAC / 0.97@277VAC (Refer to graph on page 6)
OUTPUT	
Output Voltage Range	3 -57VDC*
Output Current Range	100 - 1650mA* (1mA step programmable)
Output Current Tolarance	± 5%
Output Current Ripple	± 5% @ Max load
Line Regulation	± 0.5%
Load Regulation	± 0.5%
Turn On Delay Time	0.4 sec @ Max load
Sensor Power Supply (Aux)	12 - 25V up to 160mA (Programmable)*
Stand-By Power	>1W
ENVIRONMENTAL	
Env. Protection Rating	IP40
Surge Protection	2.5kV
Operating Ambient Temperature	-40°C - +60°C
Operating Temperature	-40°C - +75°C
Storage Temperature	-40°C - +85°C
Expected Lifetime	50k hours at 75°C (Refer to graph on page 7)
Audible Noise	< 24dB Class A
Withstanding Voltage	2.5kV

* Depending on model

DIMMING	
Dimming Control	0-10V
Dimming Input Range	-2 to +15V
Dimming Curves	Linear / Logarithmic (Programmable)
Min. Dimming Level	Dim down to 0.1%
Dim to off	Yes (Programmable)
Current Consumption	0.35mA / Source
LED THERMAL PROTECTION (NTC)	
NTC Value (Manufacture: Vishay)	15 kΩ ± 5% @25°C P/N: NTCS0805E3153JMT
Output Level Range	1mA step programmable (0 - 100%)
PROTECTION	
Over Current Protection	Yes; Current limiting
Short Circuit Protection	Yes; Hiccup mode
Over Voltage Protection	Yes; Hiccup mode
Over Temperature Protection	Yes; Power derating (Refer to graph on page 7)
Mis-Wiring Protection	Yes; Auto shutdown
MECHANICAL HOUSING	
Length	12.00" (304.8mm)
Mounting Length	11.70" (296.8mm)
Width	1.20" (30.48mm)
Height	1.00" (25.4mm)
Housing Material	Aluminum
Housing Color	Blue Anodized
Junction Box	No
Input Connector Types	Black & White / Wago 253, Dual side / 16-20AWG strip 3/8"
Output Connector Types	Red & Blue / Wago 253, Dual side / 16-20AWG strip 3/8"
Dimming Connector Types	Purple & Grey / Wago 253, Dual side / 16-20AWG strip 3/8"
Auxiliary Connector Types	Yellow & Gray / Wago 253, Dual side / 16-20AWG strip 3/8"
NTC Connector Types	Orange & Orange / Wago 253, Dual side / 16-20AWG strip 3/8"
Mounting	Two half hole flange mount
APPROVAL MARKINGS	
Certificates / Approval Signs	UL 8750 Class 2, Class P

MAGNITUDE LIGHTING

14711 Bentley Circle. Tustin, CA 92780
Customer Service: (714) 312-5080 Fax: (714) 312-5070
Customercare@magnitudeinc.com
www.MagnitudeInc.com

Specifications - 2000mA Max Version

INPUT	
Input Voltage Range	120 - 277VAC ± 10%
Input Frequency	50 / 60Hz
Input Current	0.8A@120VAC / 0.4A@277VAC*
Inrush Current	38A Max
Efficiency	> 88% *
Power Factor	0.99@120VAC / 0.97@277VAC (Refer to graph on page 6)
OUTPUT	
Output Voltage Range	3 -50VDC*
Output Current Range	100 - 2000mA* (1mA step programmable)
Output Current Tolarance	± 5%
Output Current Ripple	± 5% @ Max load
Line Regulation	± 0.5%
Load Regulation	± 0.5%
Turn On Delay Time	0.4 sec @ Max load
Sensor Power Supply (Aux)	12 - 25V up to 160mA (Programmable)*
Stand-By Power	>1W
ENVIRONMENTAL	
Env. Protection Rating	IP40
Surge Protection	2.5kV
Operating Ambient Temperature	-40°C - +60°C
Operating Temperature	-40°C - +75°C
Storage Temperature	-40°C - +85°C
Expected Lifetime	50k hours at 75°C (Refer to graph on page 7)
Audible Noise	< 24dB Class A
Withstanding Voltage	2.5kV

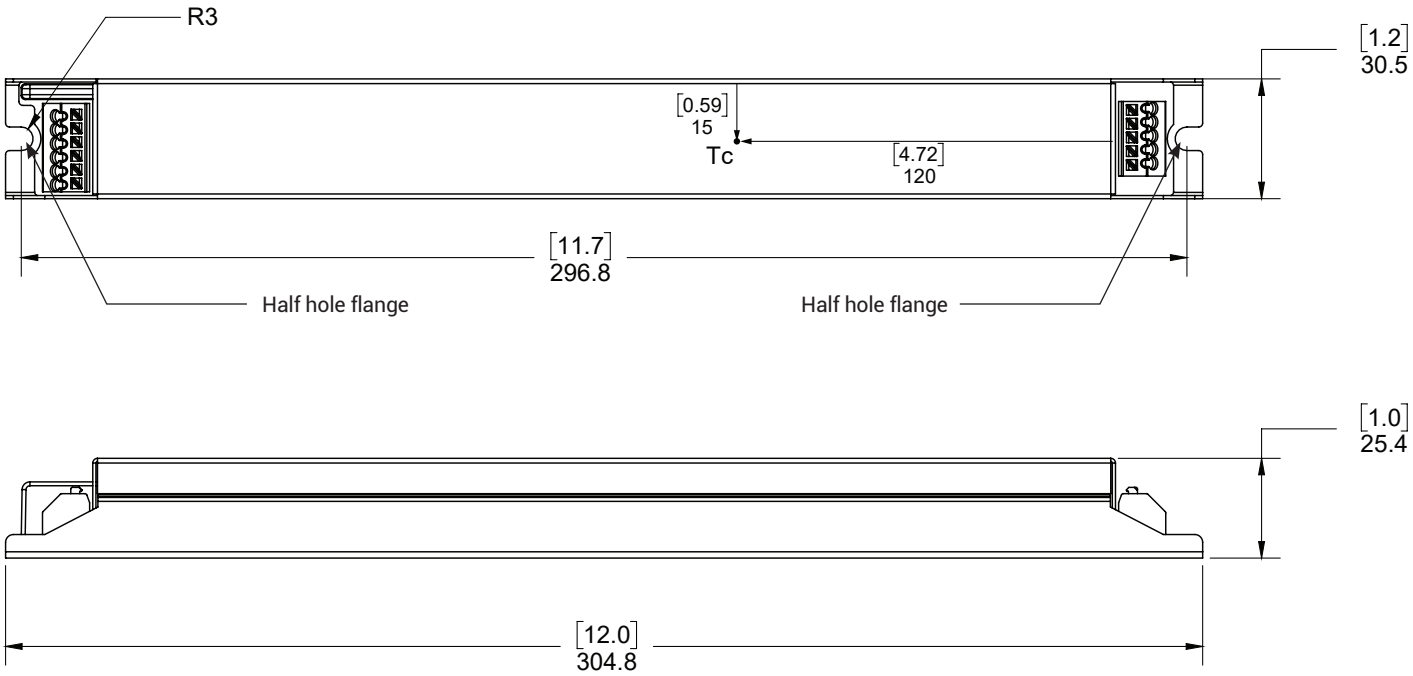
* Depending on model

DIMMING	
Dimming Control	0-10V
Dimming Input Range	-2 to +15V
Dimming Curves	Linear / Logarithmic (Programmable)
Min. Dimming Level	Dim down to 0.1%
Dim to off	Yes (Programmable)
Current Consumption	0.35mA / Source
LED THERMAL PROTECTION (NTC)	
NTC Value (Manufacture: Vishay)	15 kΩ ± 5% @25°C P/N: NTCS0805E3153JMT
Output Level Range	1mA step programmable (0 - 100%)
PROTECTION	
Over Current Protection	Yes; Current limiting
Short Circuit Protection	Yes; Hiccup mode
Over Voltage Protection	Yes; Hiccup mode
Over Temperature Protection	Yes; Power derating (Refer to graph on page 7)
Mis-Wiring Protection	Yes; Auto shutdown
MECHANICAL HOUSING	
Length	12.00" (304.8mm)
Mounting Length	11.70" (296.8mm)
Width	1.20" (30.48mm)
Height	1.00" (25.4mm)
Housing Material	Aluminum
Housing Color	Blue Anodized
Junction Box	No
Input Connector Types	Black & White / Wago 253, Dual side / 16-20AWG strip 3/8"
Output Connector Types	Red & Blue / Wago 253, Dual side / 16-20AWG strip 3/8"
Dimming Connector Types	Purple & Grey / Wago 253, Dual side / 16-20AWG strip 3/8"
Auxiliary Connector Types	Yellow & Gray / Wago 253, Dual side / 16-20AWG strip 3/8"
NTC Connector Types	Orange & Orange / Wago 253, Dual side / 16-20AWG strip 3/8"
Mounting	Two half hole flange mount
APPROVAL MARKINGS	
Certificates / Approval Signs	UL 8750 Class 2, Class P

MAGNITUDE LIGHTING

14711 Bentley Circle. Tustin, CA 92780
Customer Service: (714) 312-5080 Fax: (714) 312-5070
Customercare@magnitudeinc.com
www.MagnitudeInc.com

Mechanical Diagram (Linear Case)

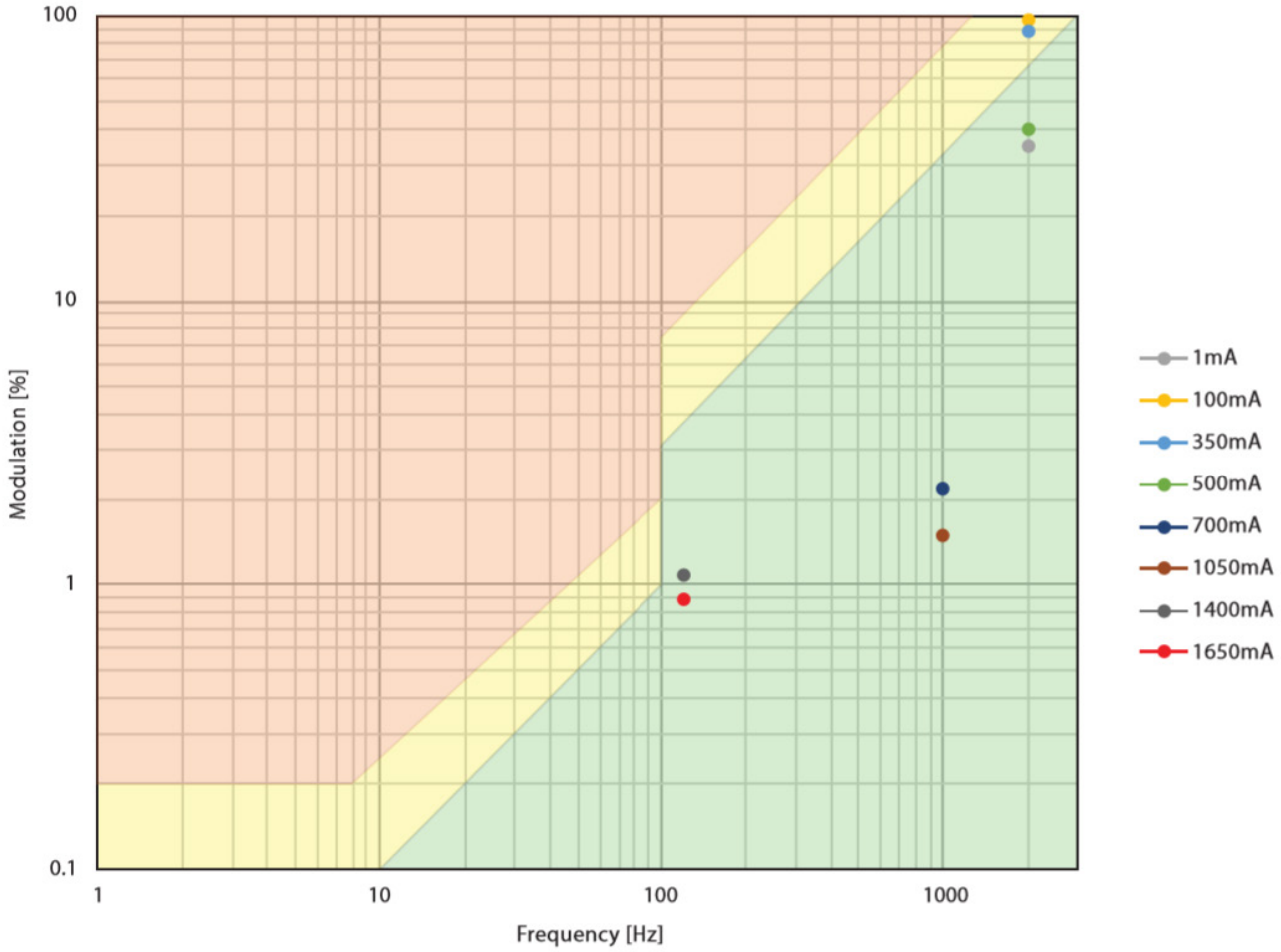


MAGNITUDE LIGHTING

14711 Bentley Circle. Tustin, CA 92780
Customer Service: (714) 312-5080 Fax: (714) 312-5070
Customercare@magnitudeinc.com
www.MagnitudeInc.com

Flicker Performance (1650mA 3-57VDC)

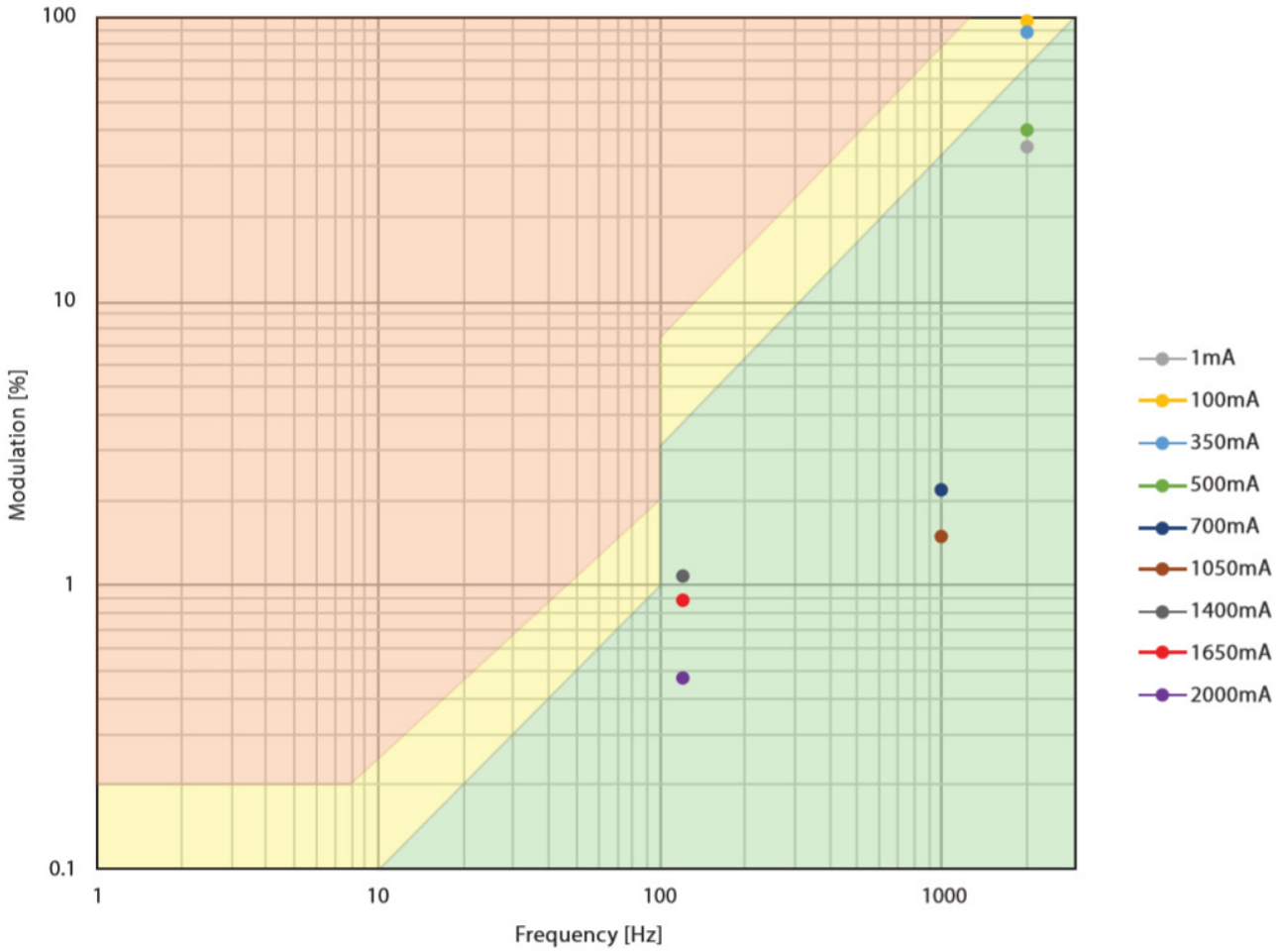
The IEEE P1789 flicker test results are presented graphically with no observable effect (green area), low-risk (yellow area), and high risk (red area).



MAGNITUDE LIGHTING
14711 Bentley Circle. Tustin, CA 92780
Customer Service: (714) 312-5080 Fax: (714) 312-5070
Customercare@magnitudeinc.com
www.MagnitudeInc.com

Flicker Performance (2000mA 3-50VDC)

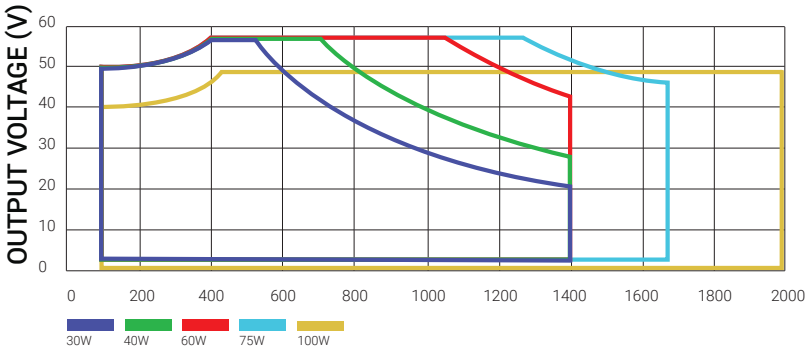
The IEEE P1789 flicker test results are presented graphically with no observable effect (green area), low-risk (yellow area), and high risk (red area).



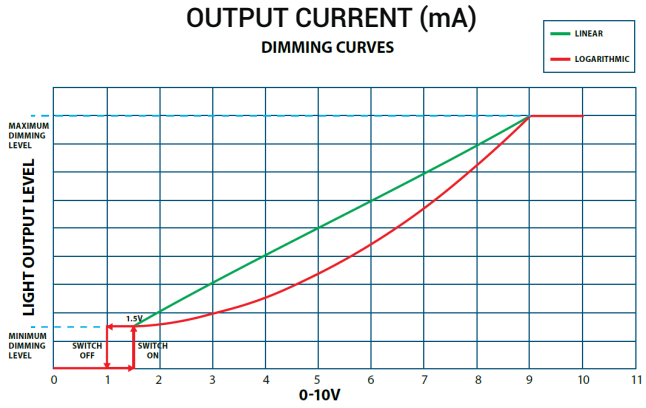
MAGNITUDE LIGHTING

14711 Bentley Circle. Tustin, CA 92780
Customer Service: (714) 312-5080 Fax: (714) 312-5070
Customercare@magnitudeinc.com
www.MagnitudeInc.com

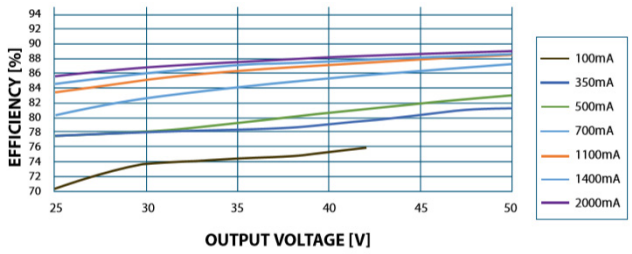
OPERATING RANGE



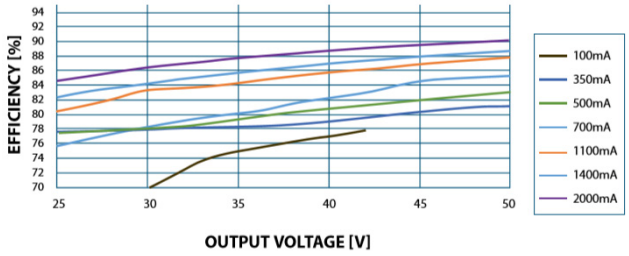
OUTPUT CURRENT (mA)



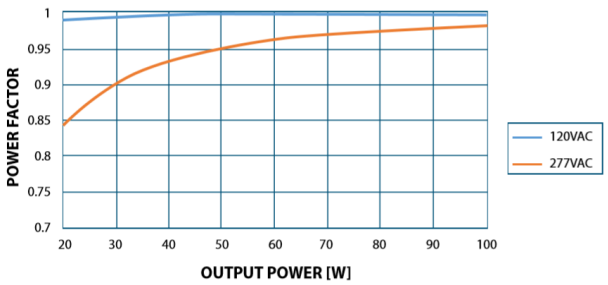
EFFICIENCY vs OUTPUT VOLTAGE (120VAC)



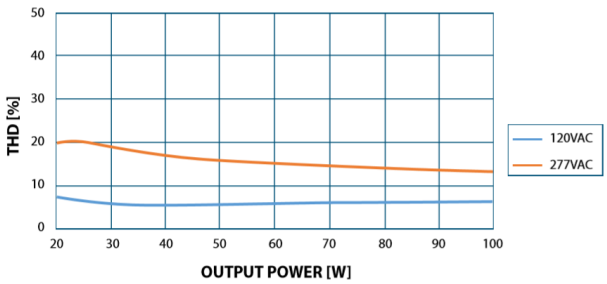
EFFICIENCY vs OUTPUT VOLTAGE (277VAC)



POWER FACTOR vs OUTPUT POWER



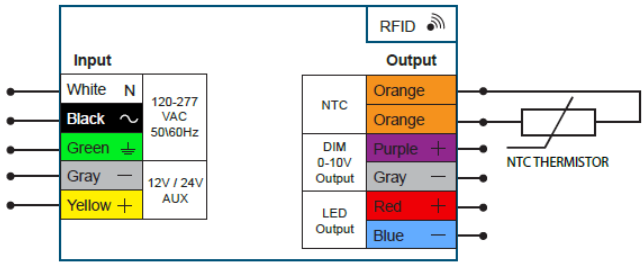
THD vs OUTPUT POWER



MAGNITUDE LIGHTING
14711 Bentley Circle. Tustin, CA 92780
Customer Service: (714) 312-5080 Fax: (714) 312-5070
Customercare@magnitudeinc.com
www.MagnitudeInc.com

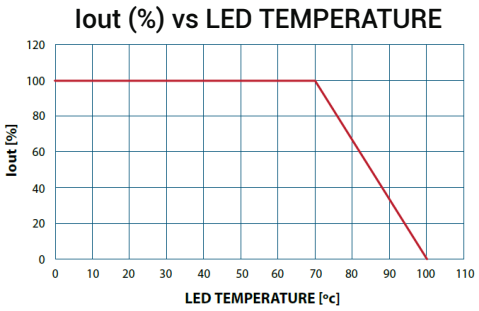
LED Thermal Protection (NTC)

AFLEX Series drivers help protect the LED's lifetime and will reduce LED temperature by derating the output current in case of high temperatures. The negative temperature coefficient (NTC) thermistor must be connected to the LED driver as shown in the wiring diagram.
For maximum performance, the NTC thermistor must be placed close to the Tc point of the LED module. The power derating parameters can be programmed using the FlexTool programmer. The NTC outputs can be left disconnected if thermal protection is not required.

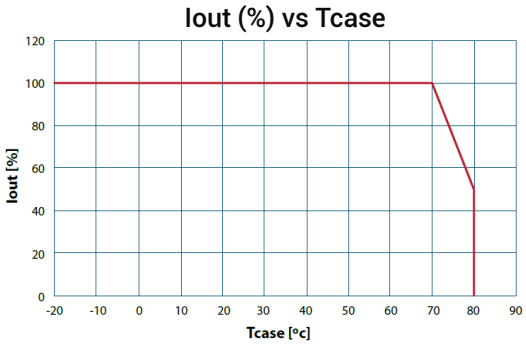


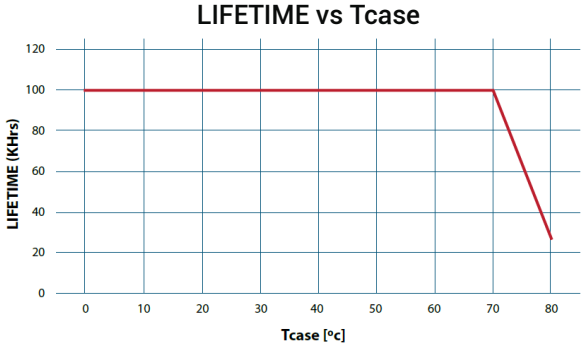
Compatible NTC Thermistor

SPECIFICATION	MANUFACTURER	MANUFACTURER P/N
15 kΩ ± 5% @ 25°C	Vishay	NTCS0805E3153JMT



Driver Thermal Protection





5% LED DROP ALLOWED			
AWG	100-700mA	*700-1650mA*	1500-2000mA
18	17ft	7ft	6ft
16	27ft	12ft	9ft
14	42ft	19ft	15ft
12	67ft	36ft	24ft

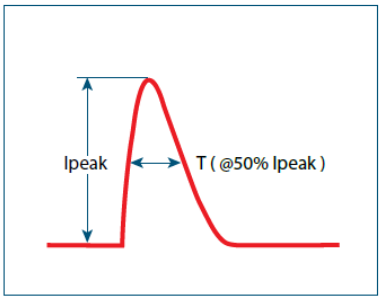
10% LED DROP ALLOWED			
AWG	100-700mA	*700-1650mA*	1500-2000mA
18	34ft	15ft	12ft
16	53ft	23ft	19ft
14	85ft	37ft	30ft
12	135ft	59ft	47ft

	MIN	MAX
Normal Operation	-40°C	+70°C
Derating Area	+70°C	+80°C
Protection Area	+80°C	
Resume operation after protection activated	+70°C	

MAGNITUDE LIGHTING
14711 Bentley Circle. Tustin, CA 92780
Customer Service: (714) 312-5080 Fax: (714) 312-5070
Customercare@magnitudeinc.com
www.MagnitudeInc.com

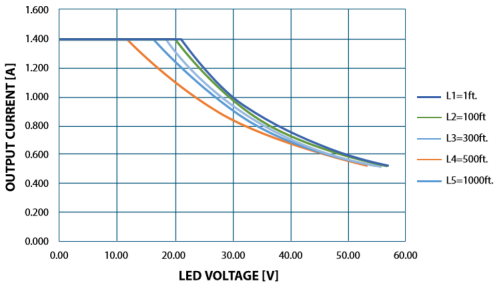
Inrush Current

VIN (V)	IPEAK (A)	T (@50% IPEAK)
120VAC	14.2	1.5 usec
277VAC	38	1.2 usec



Remote Installation

OUTPUT CURRENT vs LED VOLTAGE



TEST CONDITION:

1. Output Power = 100W
2. Output Current = 2A
3. Wire parameters = 18AWG, 16/ 30, 6.75Ω/ 1000'

Note – Above L=100ft. min LED voltage = 10V

Compatible 0-10V Dimmers

Refer to MagnitudeInc.com for compatability information.

MAGNITUDE LIGHTING

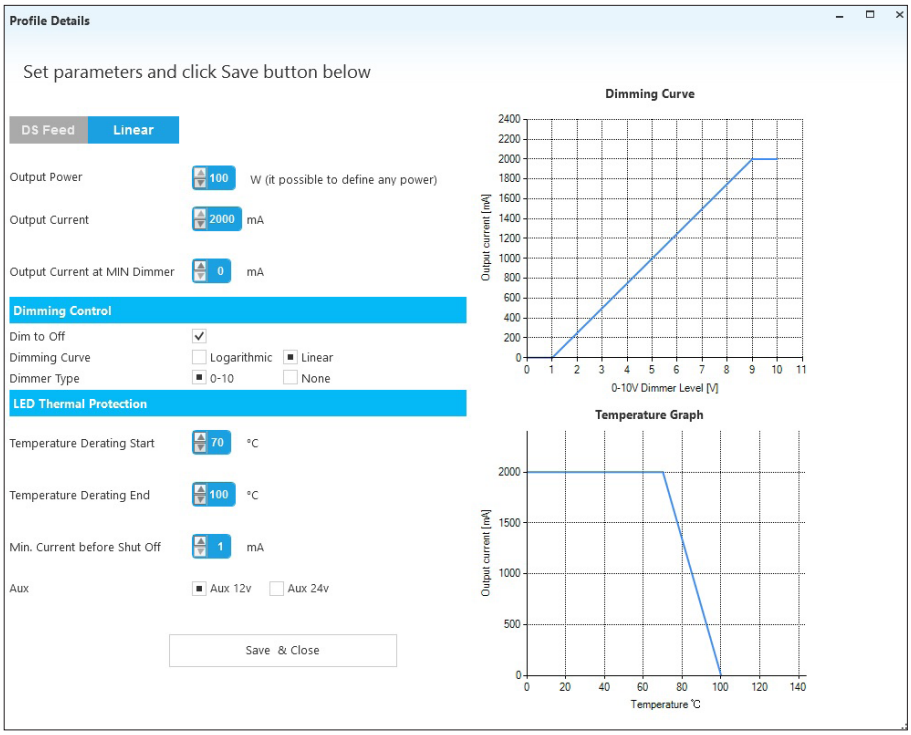
14711 Bentley Circle. Tustin, CA 92780
Customer Service: (714) 312-5080 Fax: (714) 312-5070
Customercare@magnitudeinc.com
www.MagnitudeInc.com

FLEXTOOL

P/N: FLEX-TOOL-G1

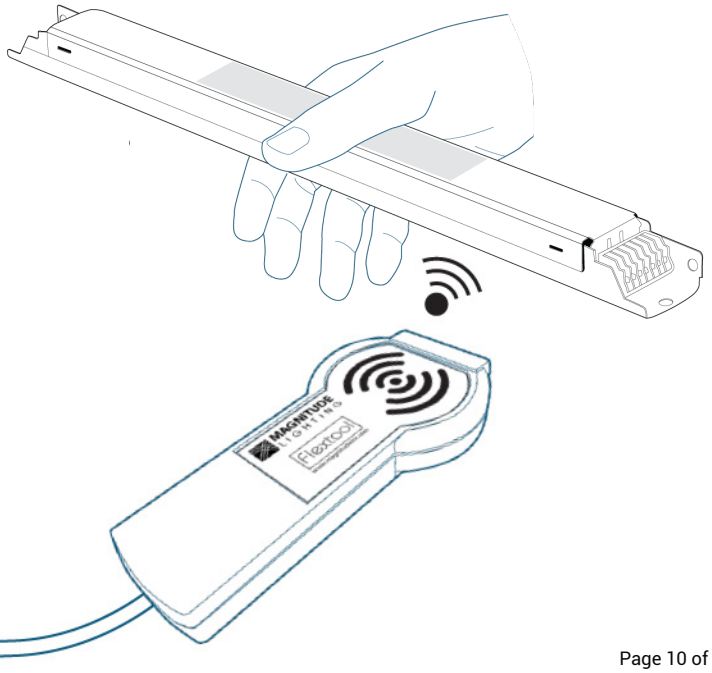
Programming the AFLEX Driver

The FlexTool wireless programer used to program Magnitude's Flex Series of LED Drivers. By using the FlexTool, OEM's can quickly and smoothly configure the drivers parameters without applying power or wires to the driver.
With the FlexTool software you can easily save driver configuration profiles externally and use as needed. The software provides graphic and audio indication that the driver was successfully congured.



Programmable Output Current and Power

Current programmable in 1mA steps. Power programmable in 1W steps.



Dimming Control

- Dim to Off: Yes/No (check box) Factory Default: Yes
- Dimming Curve: Linear or Log. Factory Default: Linear
- Min. Dimming level before Dim to Off
- Factory default 1mA
- Dimming Type: 0-10V / None. Factory Default: 0-10V

LED Thermal Protection

- Temperature Derating start. Factory Default: 70°C
- Temperature Derating end. Factory Default: 100°C
- Minimum Current Level Before Shutoff: 1mA

MAGNITUDE LIGHTING

14711 Bentley Circle. Tustin, CA 92780
Customer Service: (714) 312-5080 Fax: (714) 312-5070
Customercare@magnitudeinc.com
www.MagnitudeInc.com