

AFLEX

60W PROGRAMMABLE LED DRIVER



CLASS P

CLASS 2



The AFlex Series of Constant Current Programmable LED Drivers offers high efficiency, smooth flicker-free dimming and Dim to off capability. Magnitude's wireless programming technology (FlexTool) enables full flexibility for OEMs to easily configure the drivers output current, dimming curve, dim-to-off, NTC settings and more. Programming the Driver doesn't require any power and can be done in less than one second. The auxiliary output provides power source for sensors and/or cooling devices and eliminates the need for an additional power supply. The Drivers wide operating window, dimming performance and programming options gives luminaire manufacturers high level of flexibility. As always, 5-year warranty is a standard on all of Magnitude lighting products.

QUICK SPECS

Input Voltage	Max Output Power	Output Voltage	Output Current	Efficiency @ Max Load	THD @ Max. Load	Power Factor @ Max. Load	Envir. Protection Rating	Weight
120-277VAC / VDC +/-10%	60W	3-57VDC	100-1400mA	> 90%	< 20%	> 0.95	IP21	166gr / 5.85oz

WIRING DIAGRAM

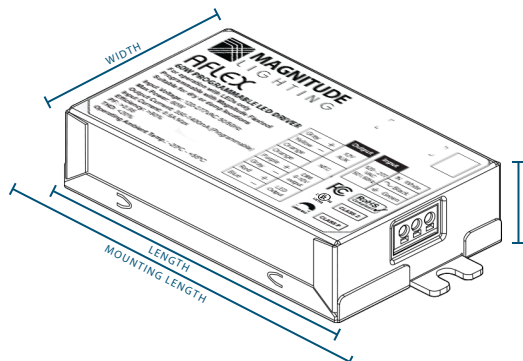
Input		Output
White	N	
Black	~	12V AUX
Green	⏚	Gray —
		Yellow +
		NTC
		Orange
		Orange
		DIM 0-10V Output
		Purple +
		Gray —
		LED Output
		Red +
		Blue —

FEATURES

- Compliant with Title 24 Requirements*
- Wireless RFID Programming - No power required
- 0-10V Dimmable - Dim Down to 0.1%
- Dim To Off Capability
- NTC - LED Temperature Sensor
- Auxiliary Power Output
- Wide Operating Window
- CLO (constant lumen output)
- Up to 90% Efficiency
- Universal Input Voltage
- UL Listed 8750, Class 2, Class P

ENCLOSURE DETAILS In. (mm)

Length	4.19 (106.4)
Mounting Length	4.94 (125.7)
Width	2.59 (65.8)
Height	1.00 (25.4)



* Most models are compliant with Title 24 flicker, standby power, and start-up time requirements. Please contact Magnitude Lighting for more details.

GENERAL

Part Number: AFLEX-xxW-□□□□-□-□□
Driver Type: Constant Current
Programming Tool: FlexTool

SPECIFICATIONS

*Specifications are at 25°C (unless specified otherwise)

Input	
Input Voltage Range	120 - 277VAC / VDC $\pm$ 10%
Input Frequency	50 / 60Hz
Input current	0.6@120VAC / 0.25@277VAC
Inrush Current	38A Max (refer to graph, page 10)
Efficiency	> 90% (refer to graph, page 6)
Power Factor	0.992@120VAC / 0.95@277VAC (refer to graph, page 7)
Output	
Output Voltage Range	3 - 57VDC
Output Current Range	100 - 1400mA (1mA step programmable)
Output Current Tolerance	$\pm$ 5%
Output Current Ripple	$\pm$ 5% @ max load
Line Regulation	$\pm$ 0.5%
Load Regulation	$\pm$ 0.5%
Turn On Delay Time	0.4 sec @ max load
Sensor Power Supply (Auxiliary)	12V up to 80mA
Stand-By Power	> 1W
Environmental	
Env. Protection Rating	IP 21 - indoor use only
Surge Protection	2.5 KV
Operating Ambient temperature	-40°C - +60°C
Operating temperature	-40°C - +75°C
Storage temperature	-40°C - +85°C
Expected life time	50K hours at 75°C (refer to graph, page 10)
EMI Compliance	FCC 47CFR Part 15 Class B
Audible Noise	< 24db Class A
Withstanding Voltage	2.5 KV

AFLEX 60W PROGRAMMABLE LED DRIVER

Dimming

Dimming Control	0-10V
Dimming input Range	-2V - +15V
Dimming Curves	Linear / Logarithmic (Programmable)
Min. Dimming level	Dim down to 0.1%
Dim to Off	Yes (Programmable)
Current Consumption	0.35mA / Source
PWM Dimming	2000Hz

LED Thermal Protection (NTC) - refer to page 8

NTC Value	Manufacturer: Vishay	15 k Ω $\pm$ 5% @25 $^{\circ}$ c Manufacturer P/N: NTC50805E3153JMT
Output Level range	1mA step programmable (0 - 100%)	

Protections

Over Current Protection	Yes; current limit
Short Circuit Protection	Yes; hiccup mode
Over Voltage Protection	Yes; hiccup mode
Over Temperature Protection	Yes; power derating (refer to graph, page 9)
Mis-Wiring Protection	Yes; auto shutdown

Mechanical & Housing

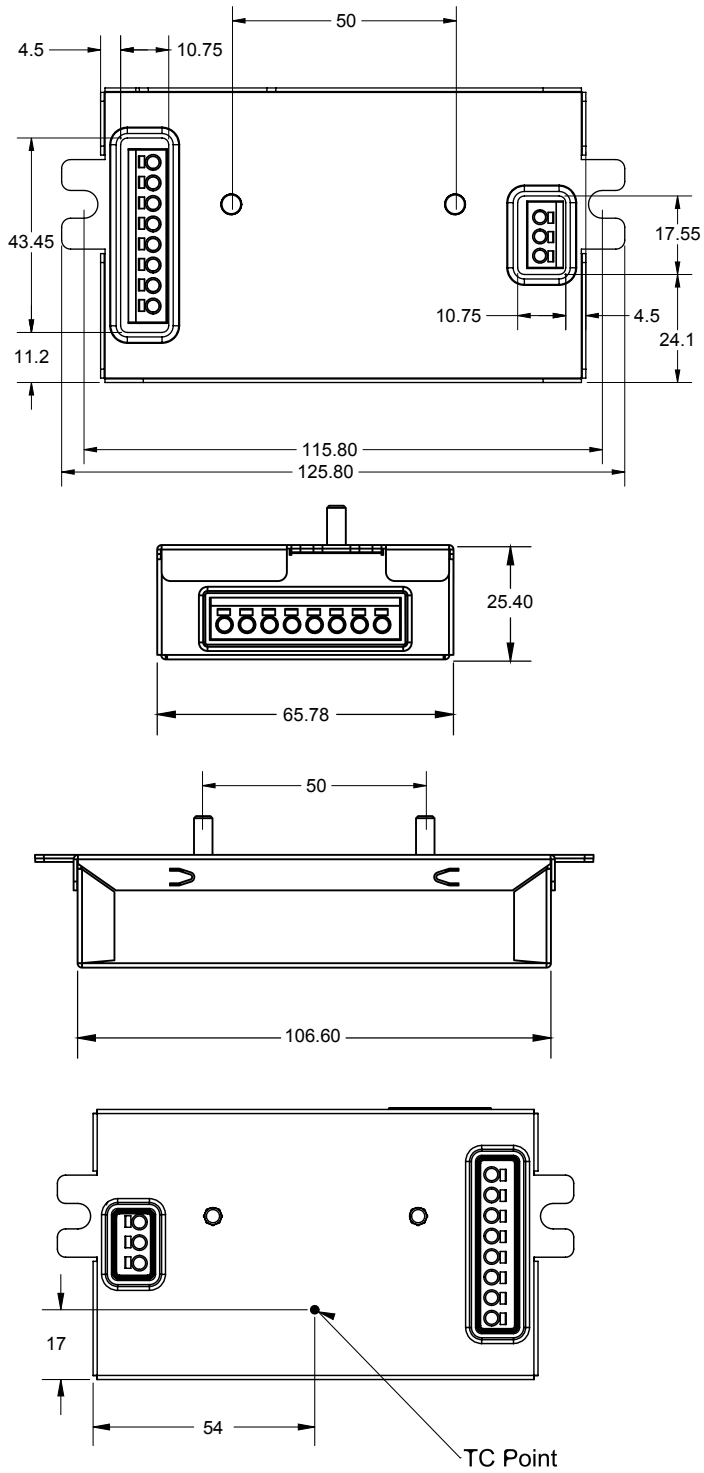
Length	4.19" Inch (106.4mm)
Mounting Length	4.94" Inch (125.7mm)
Width	2.59" Inch (65.8mm)
Height	1.00" Inch (25.4mm)
Housing material	Aluminium
Housing Color	Blue anodized
Junction Box	No
Input Connectors type	black & white/ Wago 253, dual side / 16-20AWG strip 3/8"
Output Connectors type	red & blue / Wago 253, dual side / 16-20AWG strip 3/8"
Dimming Connectors type	purple & gray / Wago 253, dual side / 16-20AWG strip 3/8"
Auxiliary Connectors type	yellow & gray / Wago 253, dual side / 16-20AWG strip 3/8"
NTC Connectors type	orange & orange / Wago 253, dual side / 16-20AWG strip 3/8"
Mounting	Two hole flange mounting

Approval markings

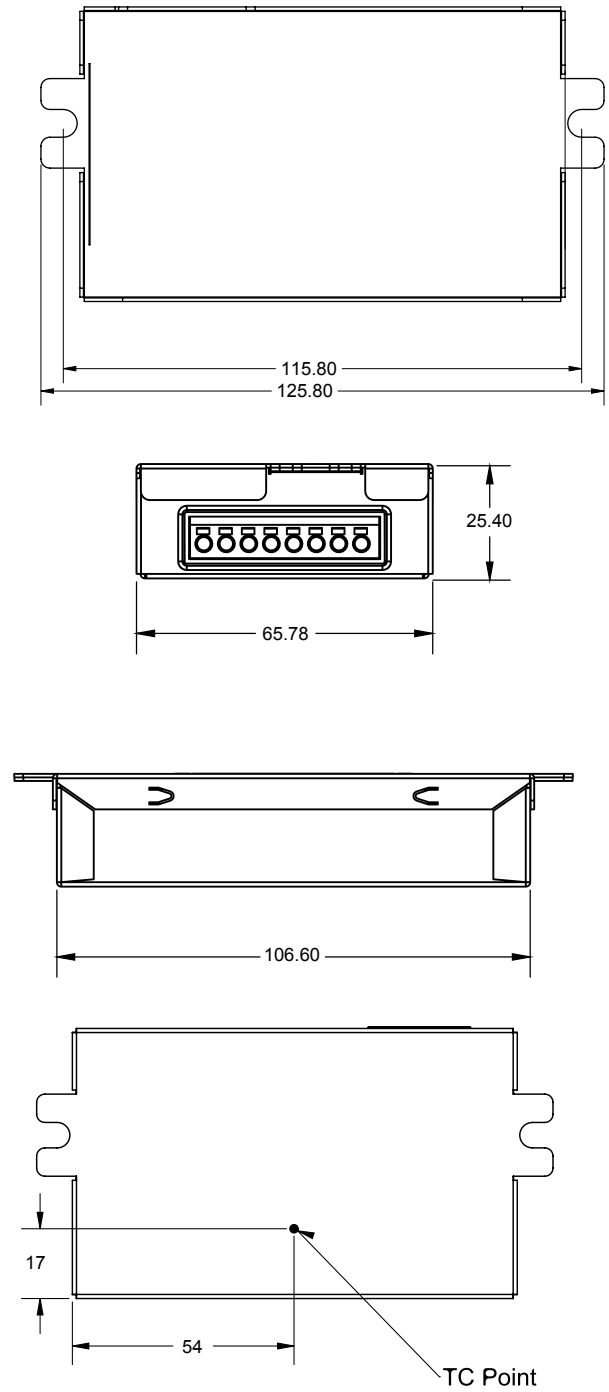
Certificates/Approval signs	UL 8750 class 2, class P
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MECHANICAL DIAGRAM

Dual Feed

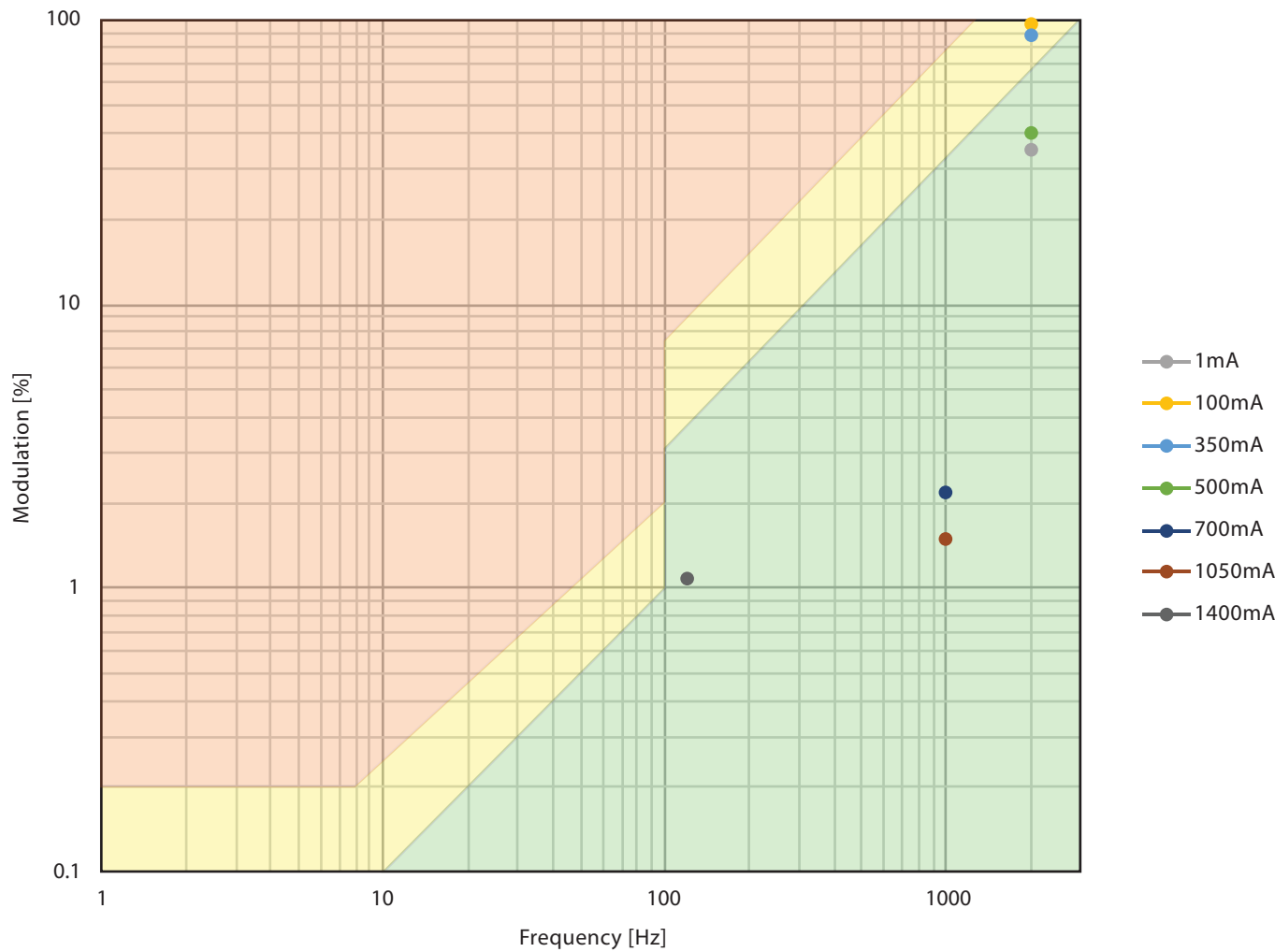


Side Feed

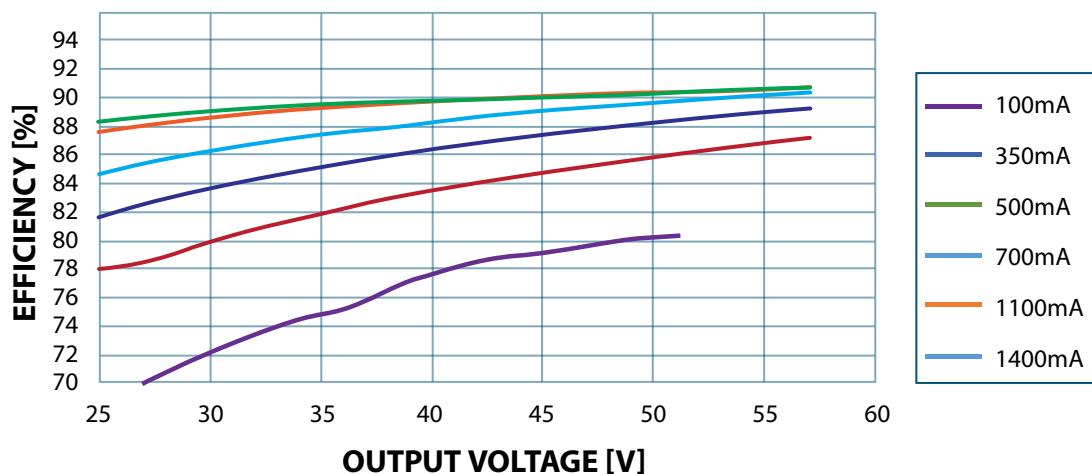


FLICKER PERFORMANCE

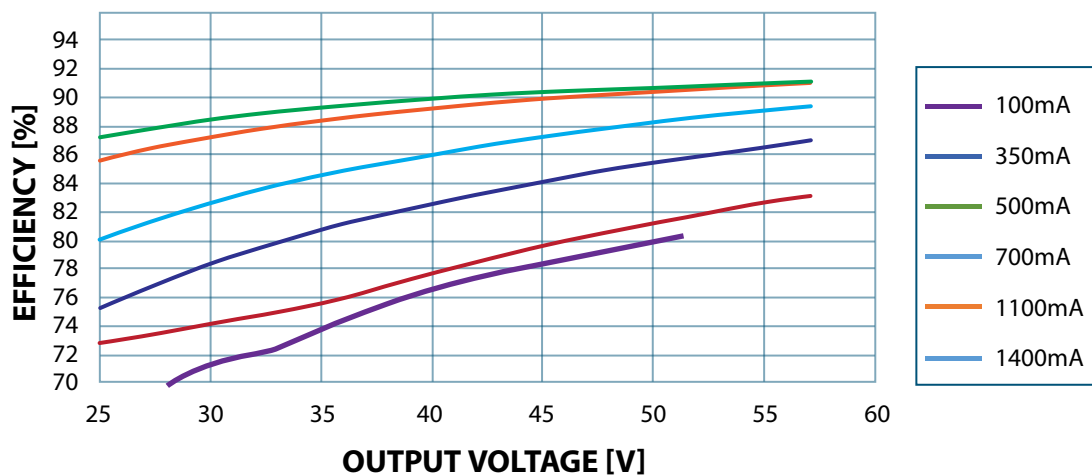
The IEEE P1789 flicker test results are presented graphically with no observable effect (green area), low-risk (yellow area), and high risk (red area).

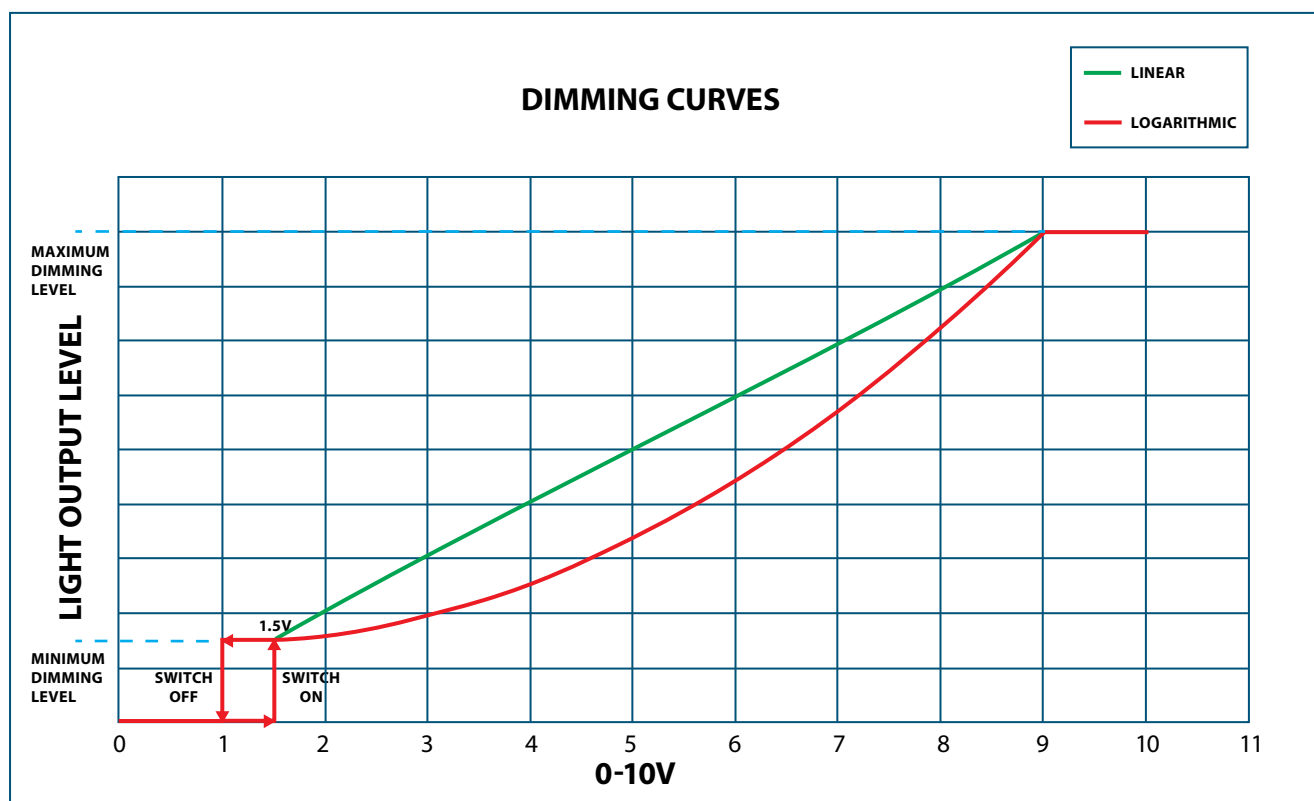
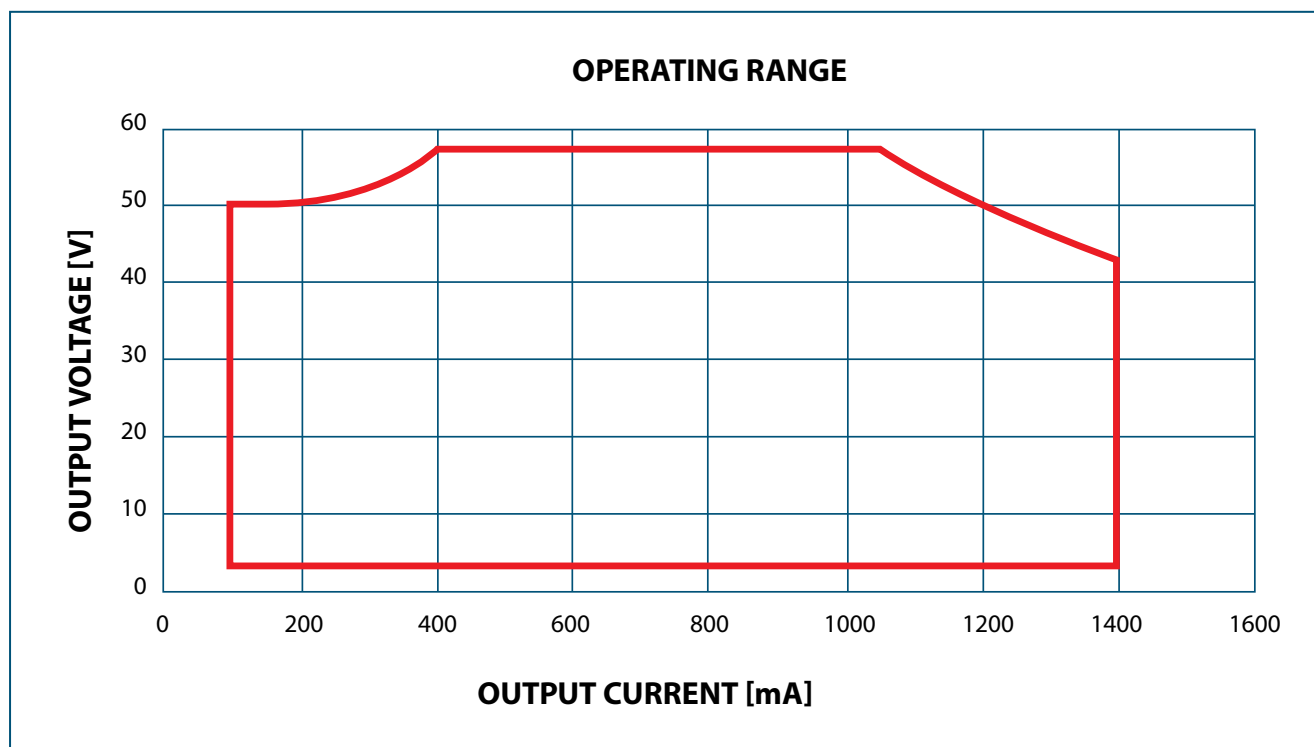


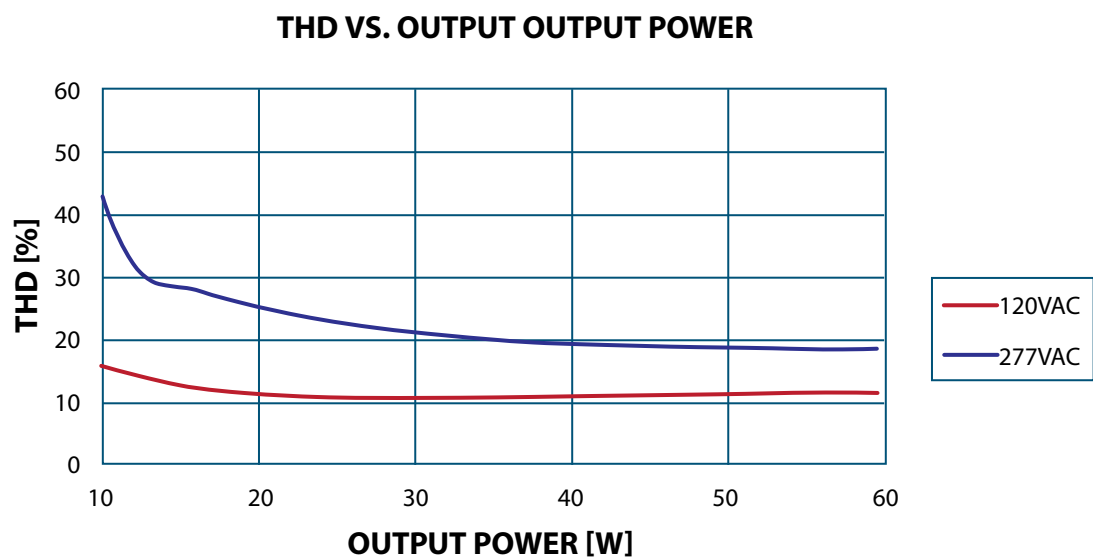
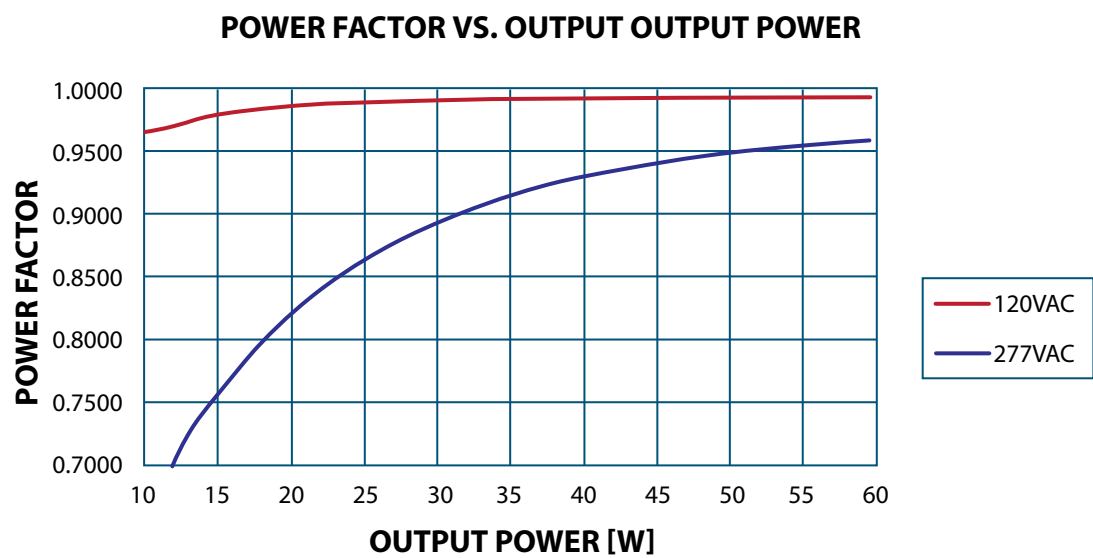
EFFICIENCY VS. OUTPUT VOLTAGE (120VAC)



EFFICIENCY VS. OUTPUT VOLTAGE (277VAC)







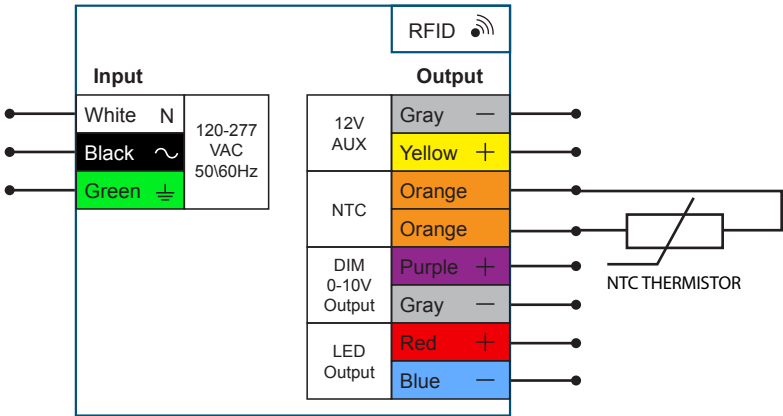
LED THERMAL PROTECTION (NTC)

The AFlex Series of drivers helps protect the LED's lifetime and will reduce the temperature of the LED module 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.

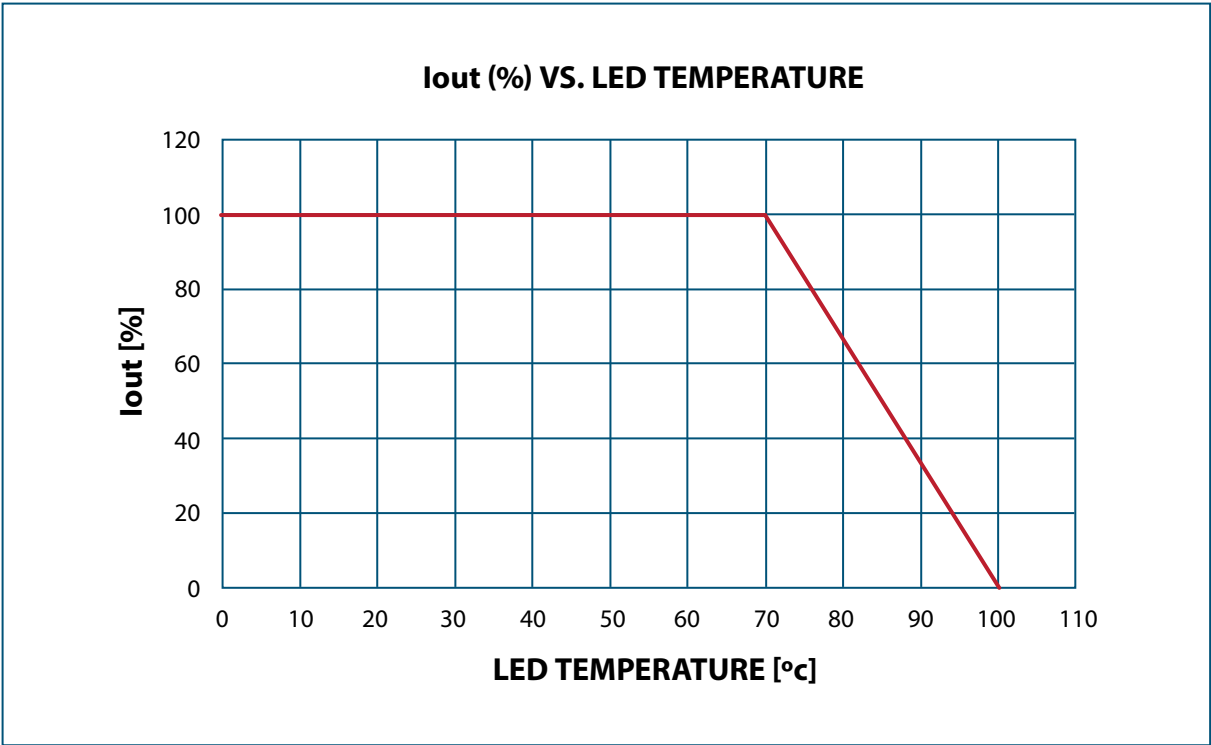
The power derating parameters can be programed using the FlexTool programmer.

The NTC outputs can be left disconnected if thermal protection is not required.

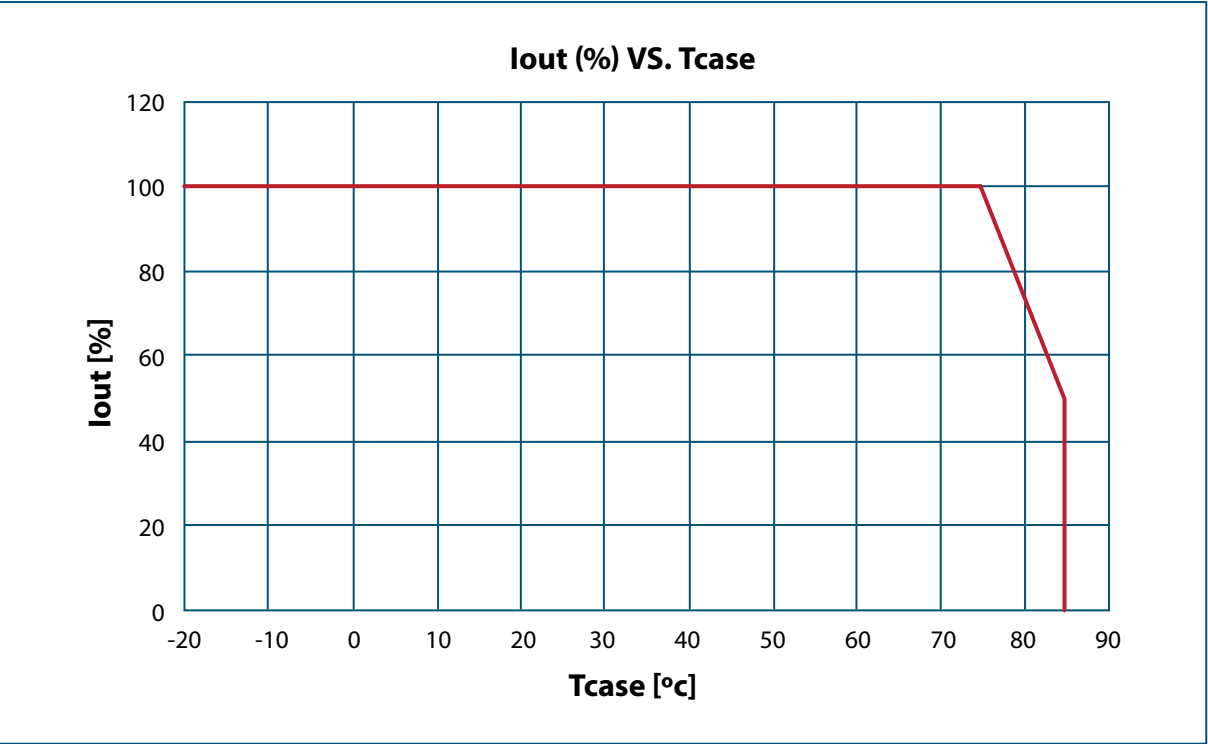


Compatible NTC thermistor:

Specification	Manufacturer	Manufacturer P/N
15 kΩ ± 5% @25°C	Vishay	NTCS0805E3153JMT



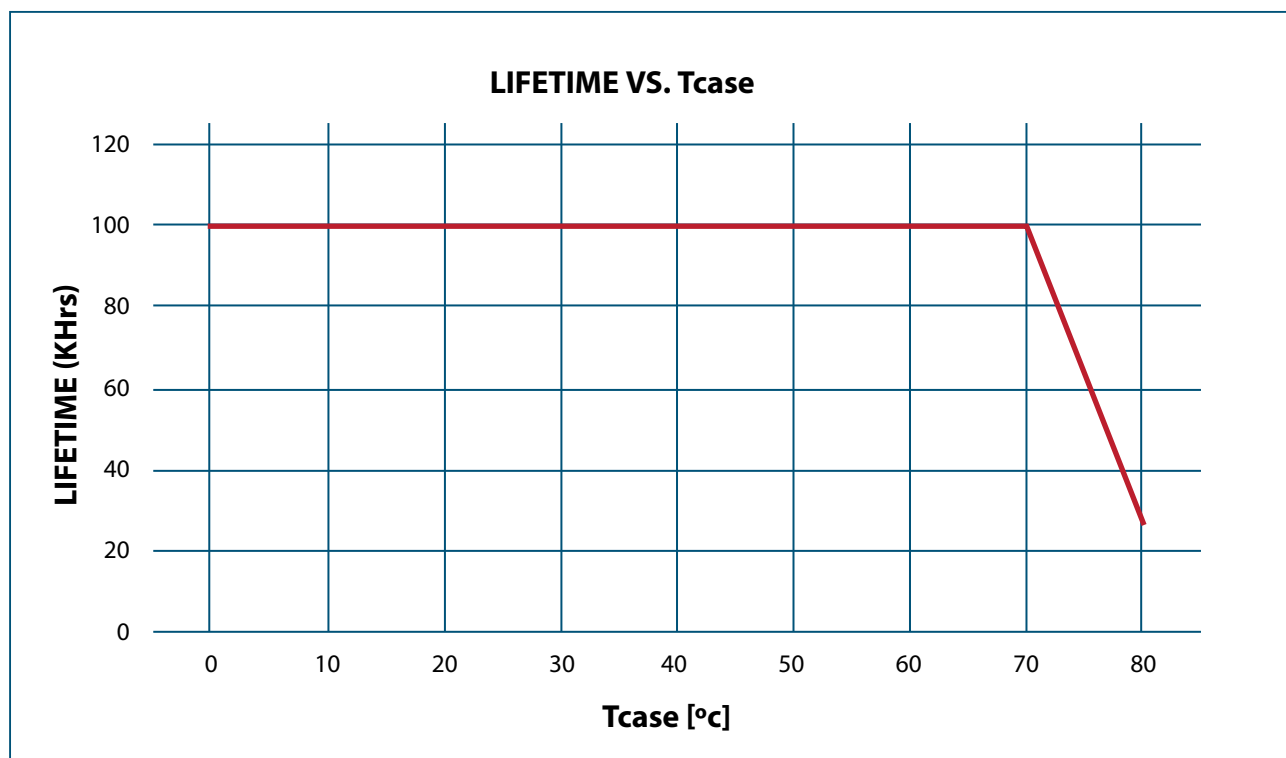
DRIVER THERMAL PROTECTION



	Min	Max
Normal operation	-40°C	+75°C
Derating area	+75°C	+85 °C
Protection area	+80°C	
Return to work after thermal protection activated	+70°C	

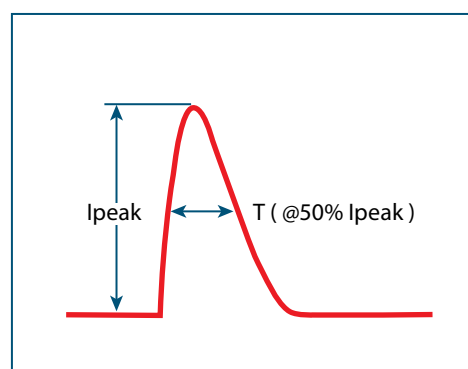
5% LED drop allowed			
AWG	100-700mA	700-1650ma	1500-1200ma
18	17 ft	7 ft	6 ft
16	27 ft	12 ft	9 ft
14	42 ft	19 ft	15 ft
12	67 ft	36 ft	24 ft

10% LED drop allowed			
AWG	100-700mA	700-1650ma	1500-1200ma
18	34 ft	15 ft	12 ft
16	53 ft	23 ft	19 ft
14	85 ft	37 ft	30 ft
12	135 ft	59 ft	47 ft

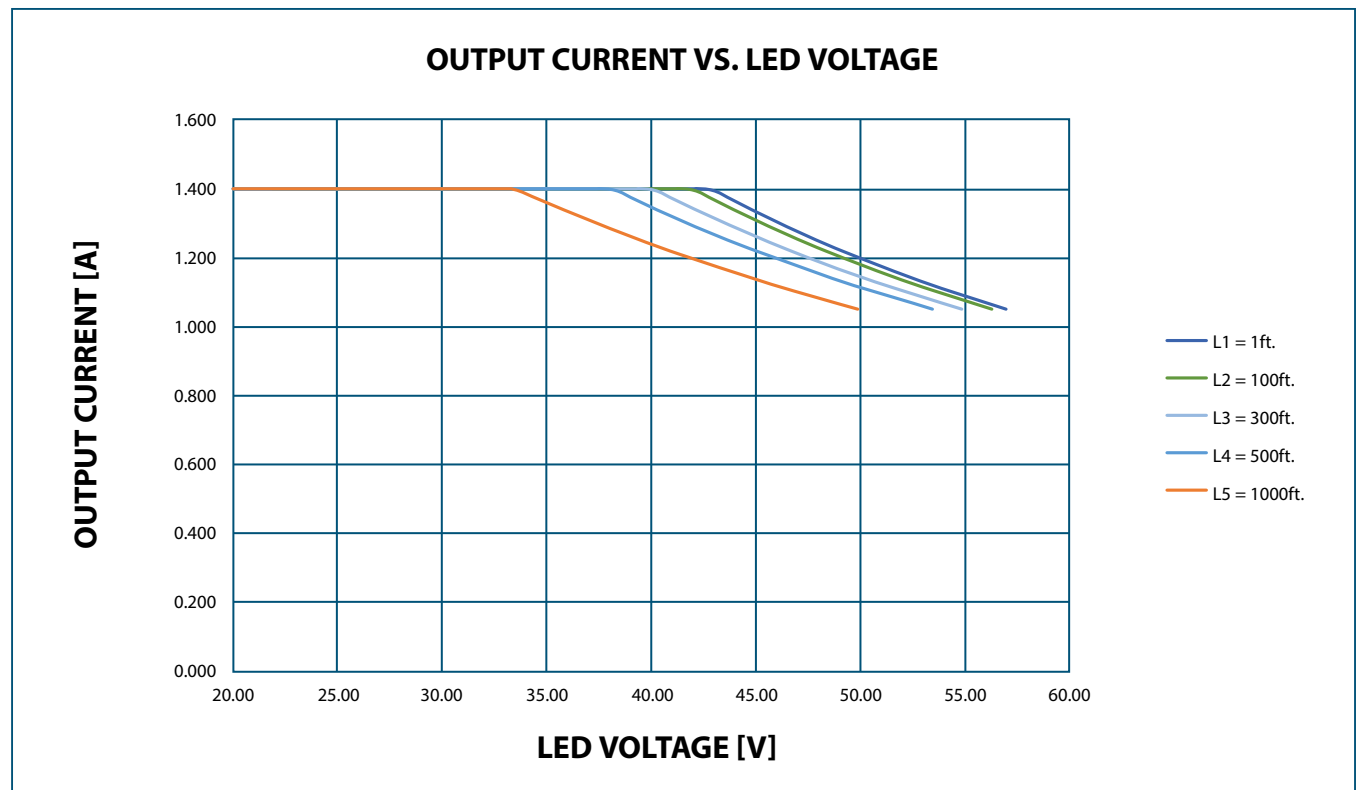


INRUSH CURRENT

Vin [V]	Ipeak [A]	T (@50% Ipeak)
120 VAC	14.2	1.5 usec
277VAC	38	1.2 usec



REMOTE INSTALLATION



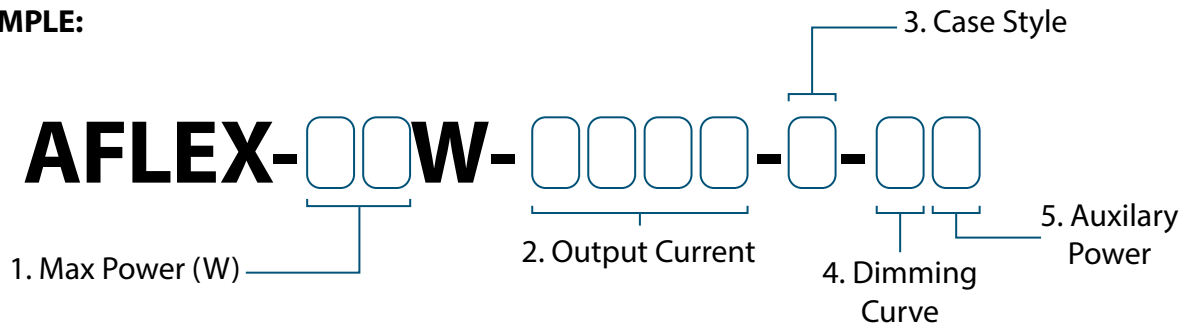
TEST CONDITION:

1. Output Power = 60W
2. Output Current = 1.4A
3. Wire parameters = 18AWG, 16/ 30, 6.75Ω/ 1000'

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

AFLEX - ORDER PART NUMBER CONFIGURATION

FOR EXAMPLE:



1. Max Power: **30 / 40 / 50 / 60W**

2. Output Current: **100 - 1400mA**

3. Case Style: **D - Double Feed (Back and Sides) / S - Single Feed (Sides)**

4. Dimming Curve: **L - For Linear / G - For Logarithmic**

5. Auxiliary Power: **A - For Aux / Empty - Non Aux**

Please Note!

for special requirements, please contact our sales team at: sales@magnitudeinc.com

COMPATIBLE 0-10 DIMMER LIST

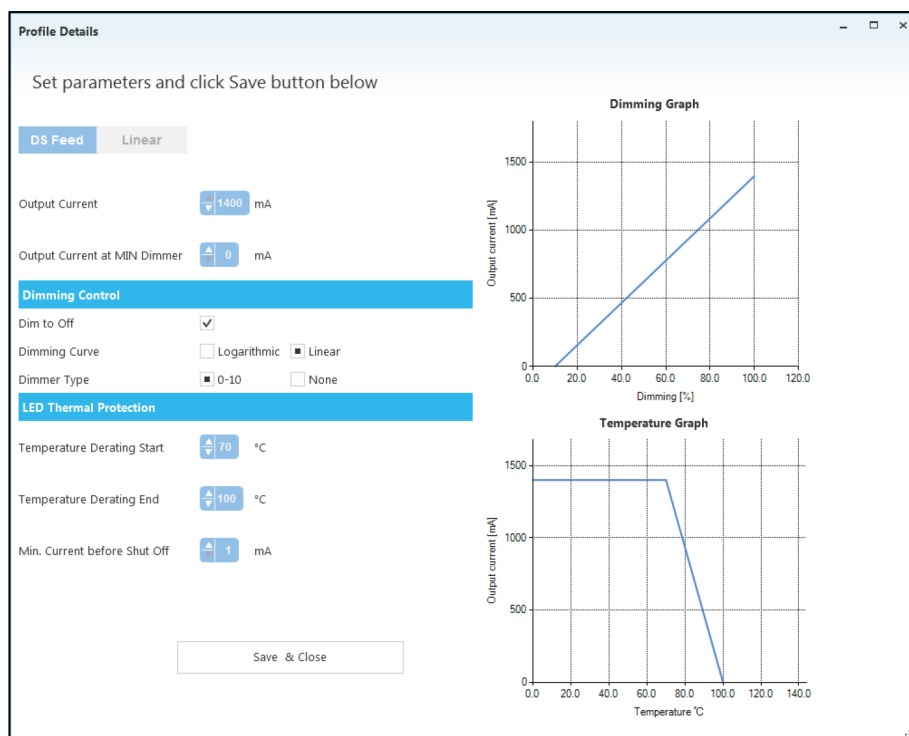
Dimming	Part Number
Lutron	Diva - DVTV
Lutron	Diva - NFTV
Lutron	Nova T - NTFTV
Leviton	illumatech - IP7
Watt Stopper	DCLV1
Lightolier Controls	ZP600FAM120
Phillips	Sunrise - SR1200ZTUNV

FLEXTOOL

PROGRAMMING THE AFLEX DRIVER

The “FlexTool” is a wireless programmer 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 to an external file and use as needed. The software provides graphic and audio indication that the driver was successfully configured.



PROGRAMMABLE OUTPUT CURRENT

1mA step programmable.

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
- Dimming type: 0-10V / Non. 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

