

DESCRIPTION

STRATO switch mode driver technology is designed to generate one constant current output from a wide range AC input. The size and performance of these products make them the ideal choice for LED lighting applications.

KEY FEATURES

- Wide Input Range: 120/220-240/277V_{AC}
- Constant Current Output
- High Efficiency up to 90%
- Compact Design
- Trimmable Output Current Settings
- Dimmable with 0-10V / 1-10V Dimmers
- Over-Temperature Protection for LEDs (NTC)
- Convection Cooled
- Wide Operating Temperature Range
- Long Life
- RoHS Compliant



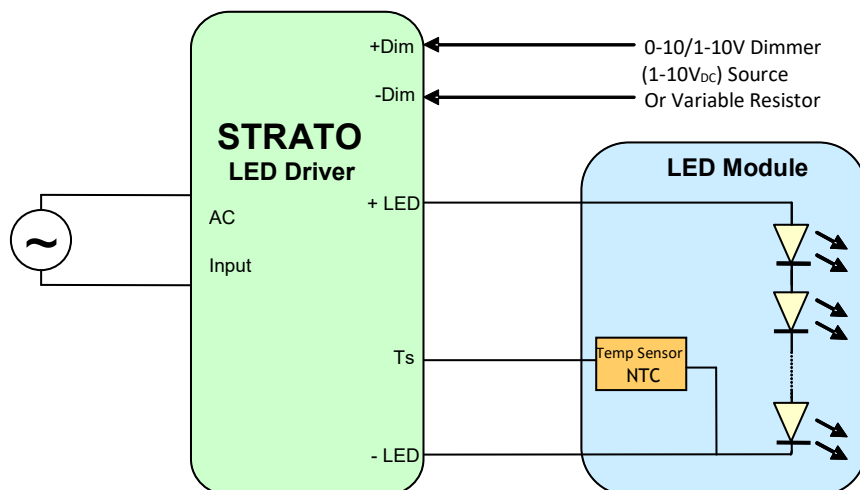
APPLICATIONS AND BENEFITS

STRATO is designed for directly powering LEDs in commercial & industrial lighting applications.

The product's extremely **small form factor** and **high efficiency** makes it suitable for integration into most light fixtures and standard electrical junction boxes.

A host of integrated **control features**:

- Simplify Light Fixture Design
- Ease Safety Approval Cycles
- Lower Fixture Complexity and Cost



STRATO's versatile control features:

- A Temperature sensor (NTC thermistor) protects the LED from over-temperature.
- A 2 wire Dimming input provides both output trimming, and 10-100% out Dimming function.



MODEL CODING AND OUTPUT RATINGS

Model number	Iout Max	Pout max	Vout (min)	Vout (max)	Vout (No Load)
	<i>mA</i>	<i>W</i>	<i>V_{DC}</i>	<i>V_{DC}</i>	<i>V_{DC}</i>
RSLD035-8B	350	9.8	21.0	28.0	35.0
RSLD035-12A	350	14.7	31.5	42.0	50.0
RSLD035-16A	350	19.1	41.0	54.5	60.0
RSLD035-7B	440	10.3	17.5	23.5	30.6
RSLD035-10A	440	15.0	26.0	34.0	44.2
RSLD035-12B	450	18.9	31.5	42.0	50.0
RSLD035-12J	500	21.0	31.5	42.0	50.0
RSLD035-21	500	36.7	52.5	73.5	88.2
RSLD035-12F	550	23.1	31.5	42.0	50.0
RSLD035-12C	600	25.2	31.5	42.0	50.0
RSLD035-7C	700	16.5	17.5	23.5	30.6
RSLD035-9A	700	22.1	22.5	31.5	37.8
RSLD035-10	700	24.5	25.0	35.0	42.0
RSLD035-11	700	27.0	27.5	38.5	46.2
RSLD035-12	700	29.4	30.0	42.0	50.0
RSLD035-13	700	31.9	32.5	45.5	54.6
RSLD035-14	700	34.3	35.0	49.0	59.5
RSLD035-15	700	36.8	37.5	52.5	60.0
RSLD035-16	700	39.2	40.0	56.0	60.0
RSLD035-7A*	720	17.6	17.5	24.5	29.4
RSLD035-12E	800	33.6	31.5	42.0	50.0
RSLD035-12G	850	35.7	31.5	42.0	50.0
RSLD035-13A	850	38.7	34.0	45.5	59.2
RSLD035-8A	900	24.3	20.0	27.0	35.0
RSLD035-12H	900	37.8	31.5	42.0	50.0
RSLD035-09	1000	31.5	22.5	31.5	37.8
RSLD035-08	1150	32.2	20.0	28.0	33.6
RSLD035-11A	1050	39.9	28.5	38.0	49.4
RSLD035-9B	1200	38.4	24.0	32.0	38.0
RSLD035-6A	1240	25.0	14.5	20.1	24.2
RSLD035-4A*	1300	18.2	10.0	14.0	16.0
RSLD035-06	1400	29.4	15.0	21.0	25.0
RSLD035-07	1400	34.3	17.5	24.5	29.4
RSLD035-03*	1750	18.4	7.5	10.5	12.6
RSLD035-04	1750	24.5	10.0	14.0	16.0
RSLD035-05	1750	30.6	12.5	17.5	21.0

Table 1: Absolute Maximum Driver Ratings

* Certain models have lower output set points for compatibility with specific LED modules and arrays. As a result, these units will exhibit lower efficiency and lower power factor than specified herein.

Refer to Strato Application Note #3, Output Voltage Range for proper device selection.



INPUT AND OUTPUT SPECIFICATION

Specification	Test Conditions / Notes	Min	Nom	Max	Units
AC Input Voltage	120/220-240/277V _{AC} Device starts and operates at 90V _{AC} at all load conditions	90	120/220-240/277	305	V _{AC}
Input Frequency		47	50/60	63	Hz
Input Current	120V _{AC} Rated Load 230V _{AC} Rated Load 277V _{AC} Rated Load	-	-	0.50 0.26 0.22	A
Power Factor¹	120V _{AC} 230V _{AC} with output voltage between 93% and 100% 277V _{AC} and rated output current	0.9 0.9	- -	- -	%
THD²	120V _{AC}	-	--	20	%
Inrush Current	120V _{AC} Half Value time: 100μs 230V _{AC} Half Value time: 80μs 277V _{AC} Half value time: 80μs	- - -	- - -	10.89 25.5 28.0	Apk
Efficiency	120V _{AC} Rated Load 230V _{AC} Rated Load 277V _{AC} Rated Load	- - -	90 90 90	- - -	%
Harmonic Current	Complies with EN-61000-3-2, Class C load >25W with output voltage between 93% and 100%				

Note 1: Power Factor for models rated <20W @ 277V_{AC} is >0.9 with max output voltage and rated current only.

Power factor for models RSLD035-8B and RSLD035-7B shall be ≥ 0.88 @ 220-240V_{AC} and ≥ 0.85 @ 277V_{AC} when measured with max LED load

Note 2 Total Harmonic Distortion <20% @ 120VAC with output voltage between 93% and 100% and rated output current is achieved in the following models only: RSLD035-16A, RSLD035-13A, RSLD035-12A, RSLD035-12B, RSLD035-12C, RSLD035-12E, RSLD035-12F, RSLD035-12G, RSLD035-12H, RSLD035-12J, RSLD035-11A, RSLD035-10A, RSLD035-9B, RSLD035-8A, RSLD035-8B, RSLD035-7B, RSLD035-7C



OUTPUT SPECIFICATIONS

Specification	Test Conditions / Notes	Min	Nom	Max	Units
Output Power Rating	check Model Coding and Output Ratings table	9.8	-	39.9	W
Output Voltage	check Model Coding and Output Ratings table	7.5	-	73.5	V
Output Current	check Model Coding and Output Ratings table	350	-	1750	mA
Ripple Current	All models measured (I _{out_pk-pk} /RMS)	-	-	45	%
Output Regulation³		-	-	±3	%I _{out}
Start-up time	With no dimmer connected	-	-	500	ms

Note 3 For the following models Output regulation is ±5%: RSLD035-16A, RSLD035-13A, RSLD035-12A, RSLD035-12B, RSLD035-12C, RSLD035-12E, RSLD035-12F, RSLD035-12G, RSLD035-12H, RSLD035-12J, RSLD035-11A, RSLD035-10A, RSLD035-9B, RSLD035-8A, RSLD035-8B, RSLD035-7B, RSLD035-7C



PROTECTION FEATURES

Specification	Test Conditions / Notes	Min	Nom	Max	Units
Output Over Voltage		110	-	130	%V _{MAX}
Output Short-Circuit	Hiccup, auto Recovery	-	-	-	-
Over-Temperature T_c	Hiccup, auto Recovery if the PSU exceeds the rated T _c temperature	-	90	-	°C
No Load	Check No Load Voltage in Table 1	16	-	88.2	V
Isolation Primary-to-Secondary	Reinforced/double Insulation meets IEC/EN61347-2-13 Class II				



CONTROLS

Output Controls: Two dedicated inputs provide control and safety features.

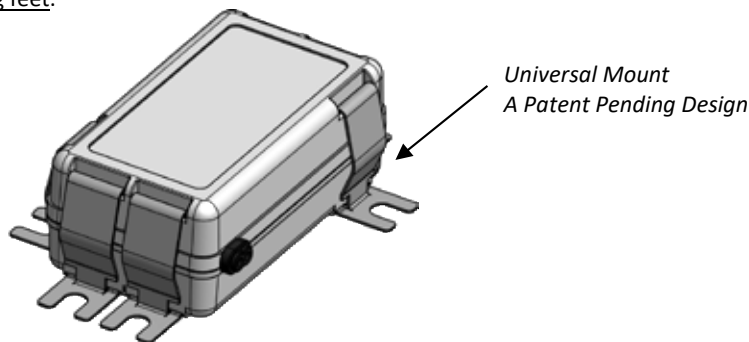
Dim: A dimming input can be used to adjust the output setting via a standard commercial wall dimmer, an external control voltage source (1 to 10V_{DC}), or a variable resistor when using the recommended number of LEDs. The input permits 100% to 80% trimming and 100% to 10% dimming. This permits active control of the driver and may be used for trimming and dimming purposes. See Strato Application Note 1 for details on functionality and compatibility with standard industry practices.

Ts: The Temperature input may be connected to a 100k NTC thermistor. The thermistor should be located on the LED assembly to monitor its temperature. If the temperature exceeds a predetermined set point, the output current of the module is automatically reduced to regulate the temperature of the LED at a safe level. See Strato Application Note 1 for details.



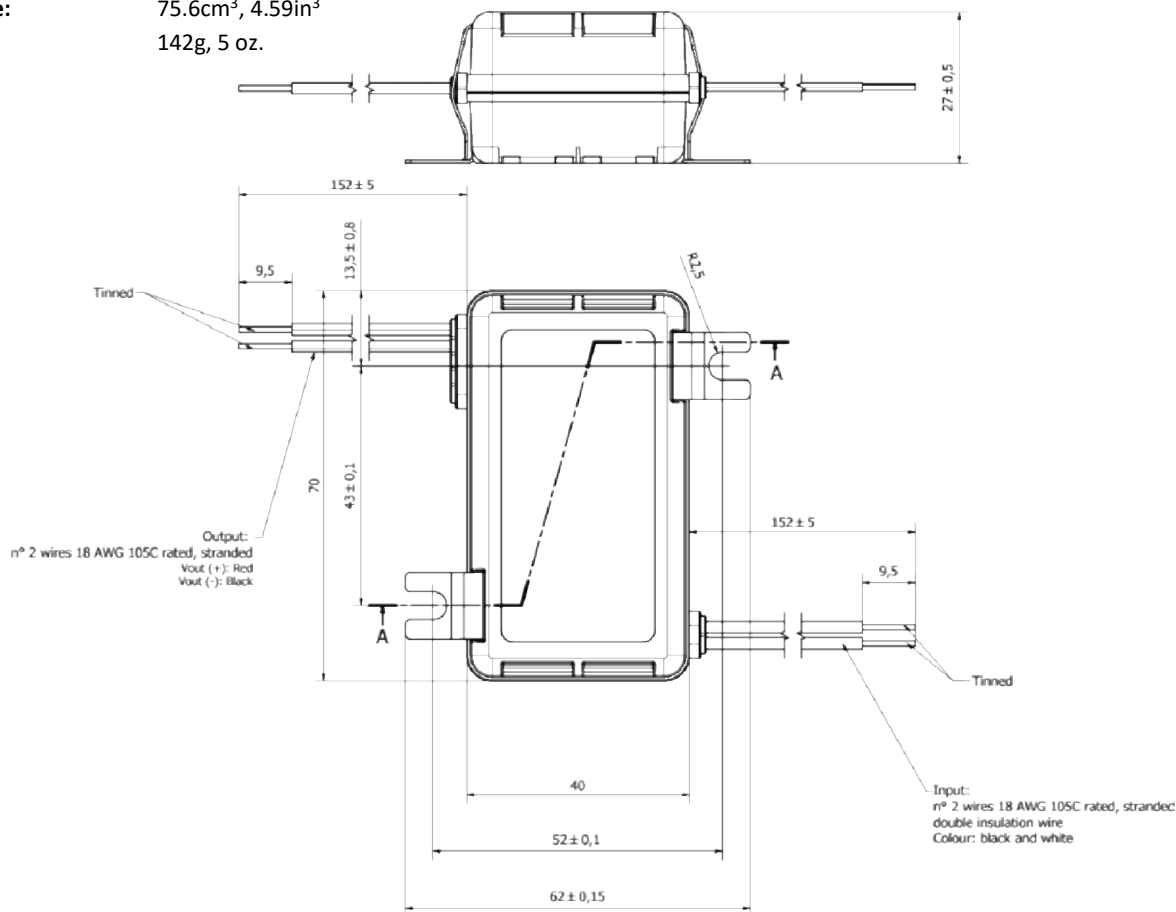
MECHANICAL DETAILS

- Packaging Options:** Partially Encapsulated with ABS plastic body enclosure
- I/O Connections:** Flying leads, 18AWG on power leads, 20AWG on control leads, 152mm long, 105°C Rated, Stranded, Stripped by approximately 9.5mm and tinned. Double insulation input wires.
- Ingress Protection:** IP20, UL damp rated
- Mounting Details:** Universal Mounting Clips, and 6 mounting locations per package allow installer to choose the most suitable position for the mounting feet.




OUTLINE DRAWINGS

- Package:** RSLD035
- Dimensions:** 70 x 40 x 27mm
2.76 x 1.57 x 1.06in
- Volume:** 75.6cm³, 4.59in³
- Mass:** 142g, 5 oz.



Environmental Specifications

Specification	Test Conditions / Notes	Min	Nom	Max	Units
Top Case Temperature Range	Top case temperature without derating	-30	-	90	°C
Ambient Temperature Range	As long as Tc temperature is within the limits	-30	-	70	°C
Storage Temperature		-40	-	85	°C
Operating Relative Humidity	Non-condensing	5	-	95	%
Surface Temperature	Exposed surfaces temperature under all operating conditions	-	-	90	°C
Cooling	Convection cooled				
Shock EN 60068-2-27	Operating: Half sine, 30 g, 18 ms, 3 axes, 6x each (3 positive and 3 negative). Non-Operating: Half sine, 50 g, 11 ms, 3 axes, 6x each (3 positive and 3 negative).				
Vibration EN 60068-2-64	Operating: 5 – 500Hz, 1gRMS (0.02 g ² /Hz), 3 axes, 30 min. Non-Operating: 5 – 500Hz, 2.46gRMS (0.0122 g ² /Hz), 3 axes, 30 min.				
Vibration EN 60068-2-6	Operating Sine, 10 – 500Hz, 1g, 3 axes, 1 oct/min., 60 min.				
MTBF	Typical Load, 70°C Tc, MIL.HDBK-217E	-	250k	-	Hours
Useful Life	Nominal V _{AC} , 70°C Tc Nominal Load	-	50k	-	Hours



ELECTROMAGNETIC COMPATIBILITY (EMC) – EMISSIONS

Phenomenon	Conditions / Notes	Standard	Performance Class
Conducted Emission	Test at 120V _{AC}	EN55022; FCC Part 15	Class B
	Test at 230V _{AC}	EN55015	-
	Test at 277V _{AC}	EN55022; FCC Part 15	Class A
Radiated Emission	Test at 120V _{AC}	FCC CFR47-part15	Class B
	Test at 230V _{AC}	EN55015	-
	Test at 277V _{AC}	FCC CFR47- part 15	Class A
Harmonic Current Emissions		EN61000-3-2	Class C
Voltage Changes, Fluctuation and Flicker		EN61000-3-3	








ELECTROMAGNETIC COMPATIBILITY (EMC) – IMMUNITY

Phenomenon	Conditions / Notes	Standard	Note
Equipment for general lighting purposes -EMC Immunity Req.		EN 61547	
ESD (Electrostatic Discharge)		EN 61000-4-2	
Radiated Radio-Frequency electromagnetic field		EN 61000-4-3	
Electric Fast Transient / Burst	Level ±1.0kV L-L	EN 61000-4-4	
Surge	Level ±1.0kV L-L	EN 61000-4-5	
Conducted disturbances induced by Radio-Frequency fields		EN 61000-4-6	
Voltage Dips, short interruptions and Voltage Variations		EN 61000-4-11	
Non-repetitive damped oscillatory transient, Ring wave	2.5kV	ANSI C.62.41	Category A



SAFETY AGENCY APPROVALS

Certification Body	Safety Standards
	UL Recognized ANSI / UL8750, 1 st Ed., CSA C22.2 No.250-13, 7 th Ed. Models with output voltages <60 V _{DC} include UL and CSA approval (cURus) as Class 2 output. LED Driver suitable for dry and damp location
	IEC/EN 62384 Electronic control gear for LED modules – Performance Requirements. IEC/EN, 61347-1, IEC/EN 61347-2-13 Electronic control gear for LED Modules – Safety.
	To obtain the “CE Declaration of Conformity”
	IECEE CB Certified, IEC/EN, 61347-1, IEC/EN 61347-2-13 electronic control gear for LED Modules. All models are isolated control gears, SELV equivalent, with internal reinforced insulation as per IEC/EN 61347-2-13. Drivers to be incorporated in the luminaire.
	Reinforced/double Insulation meets IEC/EN61347-2-13 Class II