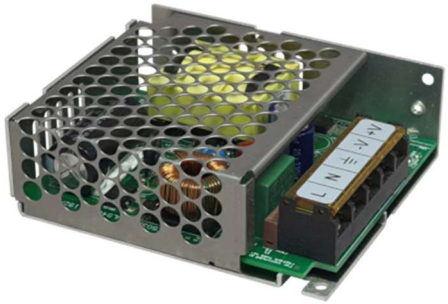
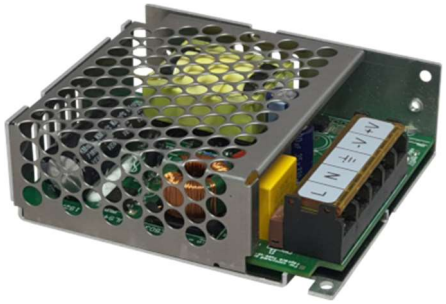
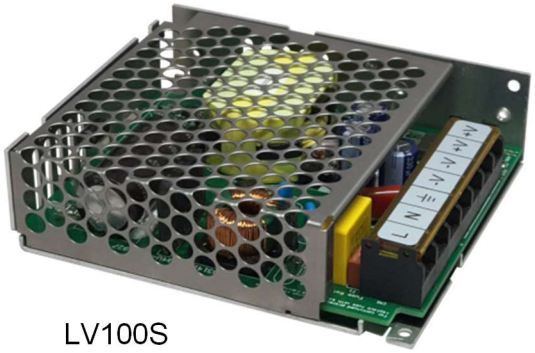
LV SERIES DATASHEET



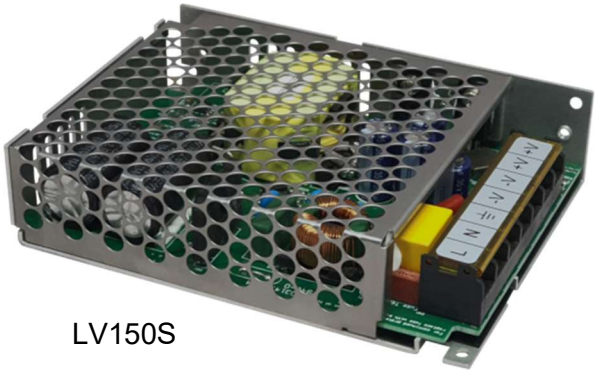
LV35S



LV50S

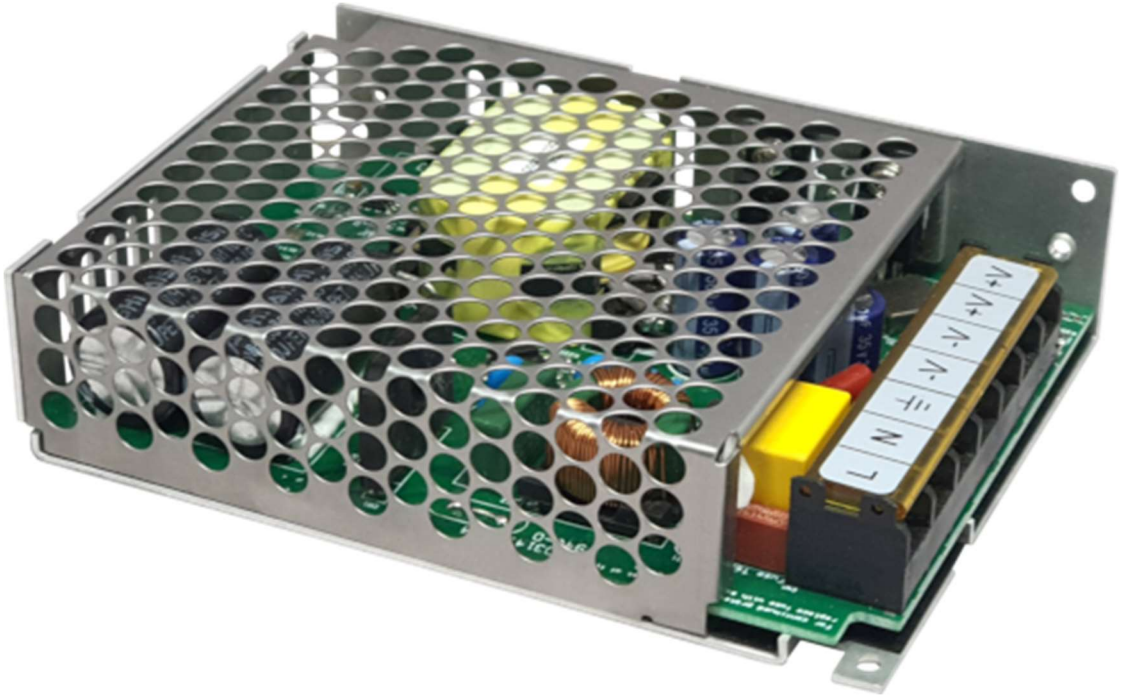


LV100S



LV150S

KEY FEATURES



- Universal AC Input
- Low Profile 30mm height
- Protected against Over Current & Over Voltage faults
- 3 years warranty[1]
- SGS Q mark meeting IEC62368, CE LVD
- SGS EMC Compliance verified
- Double-sided PCB - reinforced reliability with smaller footprint
- Upgradeable with Extra connectivity for options
  - TRIM[2],
  - ON/OFF[3],
  - STANDBY[4].
- Potentially Wireless Remote Access Control

Notes:

1. At input AC230Vac, full load, 8 hours usage per day.
2. TRIM option is available for all Output Power and all Output Voltage.
3. ON/OFF option is available for 12V & 24 Output Voltage only.
4. STANDBY option is available for 100W & 150W Output Power only.

PRODUCT CONFIGURATION:

LV	XXX	X	-	XX	/	X	-	XXX	-	X
Series Name	**Output Power**	**No. of Output**		**Output Voltage**		**Mechanical Options**		**PLUS Options**		**Others**
LV	35: 35W 50: 50W 100: 100W 150: 150W	S: Single		5: 5V 12: 12V 24: 24V 48: 48V		Blank: Covered Terminal Block Only A: Covered Terminal Block with SUS Cover B: Headers Only C: Headers with SUS Cover		X: TRIM[1] O: ON/OFF[2] S: STANDBY[3]		L: Local[5] R: Remote

Notes:

1. TRIM option is available for all Output Power and all Output Voltage.
2. ON/OFF option is available for 12V & 24V output voltage only.
3. STANDBY option is available for 100W & 150W output power only.
4. L option is for 5V output voltage only using NXP local equivalent.

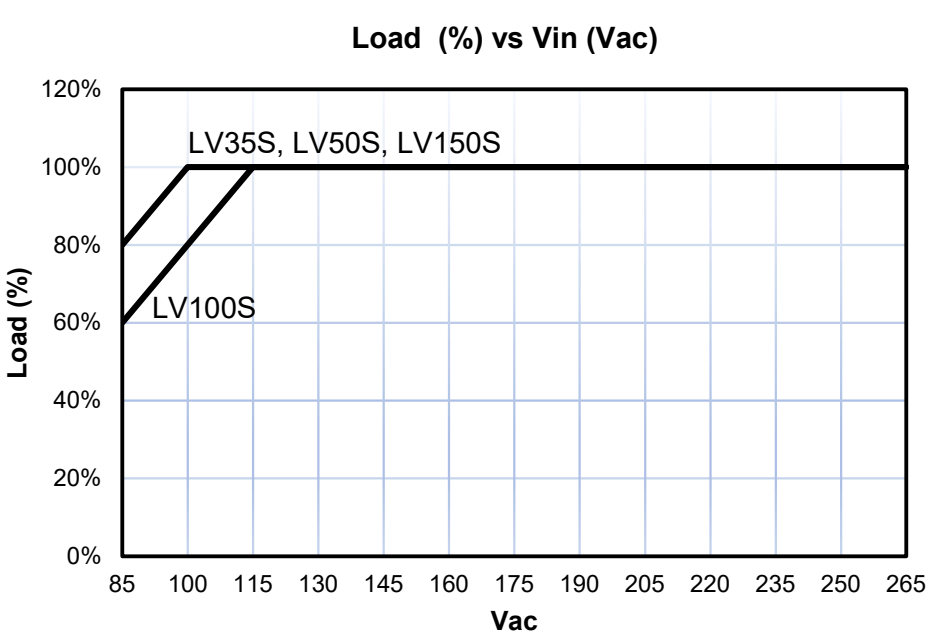
SPECIFICATIONS:

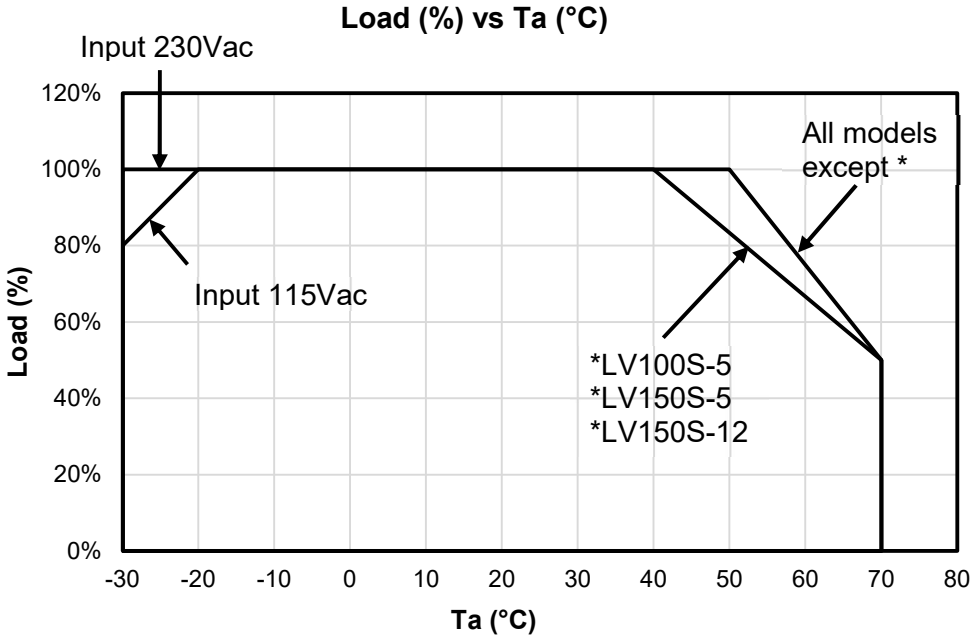
MODEL	Notes	LV35S				LV50S				LV100S				LV150S			
Output voltage		5V	12V	24V	48V	5V	12V	24V	48V	5V	12V	24V	48V	5V	12V	24V	48V
INPUT																	
Input Rated Voltage		100 ~240Vac				100 ~240Vac				100 ~240Vac				100 ~240Vac			
Input Voltage Range		85~265Vac / 120~ 375Vdc				85~265Vac / 120~ 375Vdc				85~265Vac / 120~ 375Vdc				85~265Vac / 120~ 375Vdc			
Input Rated Frequency		50~60Hz				50~60Hz				50~60Hz				50~60Hz			
Input Frequency Range		47~63Hz				47~63Hz				47~63Hz				47~63Hz			
Input Current (max)		0.9A				1.2A				2.3A				3.2A			
Inrush Current (max)	8	50A @ Cold Start & Input 230Vac				50A @ Cold Start & Input 230Vac				50A @ Cold Start & Input 230Vac				50A @ Cold Start & Input 230Vac			
Leakage Current (max)		0.75mA @ Input 240Vac				0.75mA @ Input 240Vac				0.75mA @ Input 240Vac				0.75mA @ Input 240Vac			
No Load Input Power (max)		0.5W				0.5W				0.5W				0.5W			
Efficiency		81%	84%	86%	88%	82%	85%	87%	89%	85%	87%	89%	90%	84%	86%	88%	89%
OUTPUT																	
Output Rated Voltage		5V	12V	24V	48V	5V	12V	24V	48V	5V	12V	24V	48V	5V	12V	24V	48V
Output Voltage Range (adj.)	11	±10%	±15%	±20%	±10%	±10%	±15%	±20%	±10%	±10%	±15%	±20%	±10%	±10%	±15%	±20%	±10%
Output Rated Current	14	7.00A	3.00A	1.50A	0.75A	10.00A	4.20A	2.20A	1.10A	18.00A	8.50A	4.50A	2.30A	22.00A	12.50A	6.50A	3.30A
Output Min Current		0A				0A				0A				0A			
Output Rated Power		35W	36W	36W	36W	50W	50.4W	52.8W	52.8W	90W	102W	108W	110.4W	110W	150W	156W	158.4W
Output Ripple & Noise p-p	2, 12	100mV	120mV	150mV	200mV	100mV	120mV	150mV	200mV	100mV	120mV	150mV	200mV	100mV	120mV	150mV	200mV
Load Regulation	3	1.5%				1.5%				1.5%				1.5%			
Line Regulation	4	0.5%				0.5%				0.5%				0.5%			
Rise-up Delay (max)	5	1s/500ms 115/230Vac				1s/500ms 115/230Vac				500ms				500ms			
Hold up Time (min)	6	12ms/55ms 115/230Vac				12ms/55ms 115/230Vac				7.5ms/55ms 115/230Vac				7.5ms/55ms 115/230Vac			
OCP (trigger range)	9	>110% of Output Rated Current				>110% of Output Rated Current				>110% of Output Rated Current				>110% of Output Rated Current			
OVP (trigger range)	10	>5.5	>13.8	>28.8	>55.2	>5.5	>13.8	>28.8	>55.2	>5.5	>13.8	>28.8	>55.2	>5.5	>13.8	>28.8	>55.2
OUTLINE																	
Size (L x W x H)		94.5 x 82 x 30 mm				94.5 x 82 x 30 mm				111.5 x 97 x 30 mm				129.5 x 97 x 30 mm			
STANDARDS																	
Safety Standards		IEC62368, CE LVD															
Insulation Strength		Withstand IN-OUT: 3.6kVac 1min; IN-FG: 2kVac 1min															
EMC Emissions Comply to	7	EN55032															
EMC Immune to	7	EN55035															
ENVIRONMENT																	
Storage Environment		-40°C ~ 85°C, 10~95% RH															
Operating Environment		-30°C ~ 70°C (see Derating Curve); 20% ~ 90% RH															
Vibration		10Hz ~ 55Hz, 2G 1min/cycle, 1hr each X, Y, Z axis															
Operating Altitude	13	3000m max															
Temperature Coefficient		0.03%/°C															

Notes & Conditions

1. All specifications are measured at input voltage of 230Vac, Ta at 25°C & loaded within output rated current, unless otherwise specified.
2. Noise & Ripple is measured at 300mm away from the power supply, between the output terminals & load. Connected across the terminals are 1x 47μF electrolytic capacitor and 1x 0.1μF ceramic capacitor in parallel. The oscilloscope's bandwidth is set to 20MHz.
3. Load regulation is being measured while varying the load from minimum to the rated current, and while input voltage is fixed within the rated input voltage range.
4. Line regulation is being measured while varying the input voltage from minimum to maximum input voltage range, and while load is fixed at the rated load.
5. Rise-up delay is the time taken for power supply output voltage to reach 95% of output rated voltage after the power supply is cold started.
6. Hold up time is the time taken for power supply to maintain its output voltage within 95% after input is turned off.
7. Compliance to EMI limits were done whereby the power supply is mounted onto a metal plate during testing. Customer will need to retest EMI compliance after power supplies are assembled in their equipment.
8. Inrush Current is being measured when the power supply is cold started at 230Vac input.
9. After OCP is triggered, the power supply will go into hiccup mode and will recover after the removal of overload fault.
10. LV100S & LV150S: After OVP is triggered, the unit will latch into shutdown. After the removal of overvoltage fault, the unit must be switched OFF for 5 minutes before turning ON.
    LV35S & LV50S: After OVP is triggered, the unit's voltage will enter hiccup mode and auto recover after OVP trigger is removed.
11. No matter what the voltage is set, the maximum current must not exceed the output rated current and maximum output power must not exceed the output rated power.
12. Designed to meet Green-Mode; there will be a possibility of audible humming and ripple & noise that may exceed specification during low load (0~20% of rated load) operation.
13. When operating at altitude above 2000m, derating of 5°C/1000m is required.
14. For LV100S & LV150S with Standby option "S", the output rated power will be approximately 10W lower than the standard models.

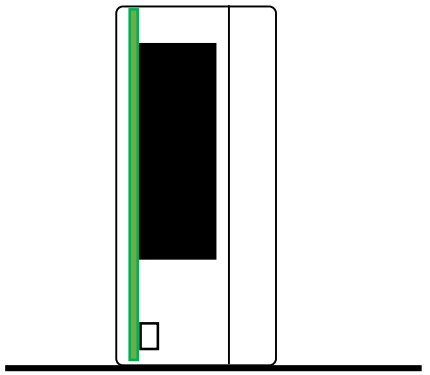
DERATING CURVE





MOUNTING METHODS

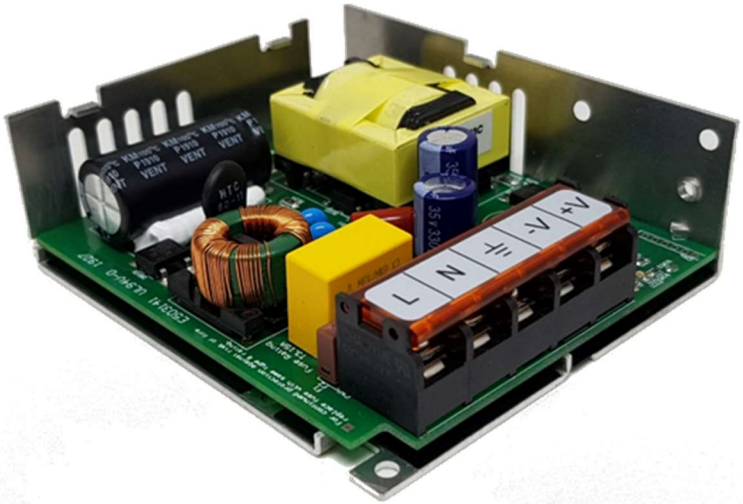
Mounting A



Mounting B

MECHANICAL OPTIONS

DEFAULT: BLANK
COVERED TERMINAL BLOCK

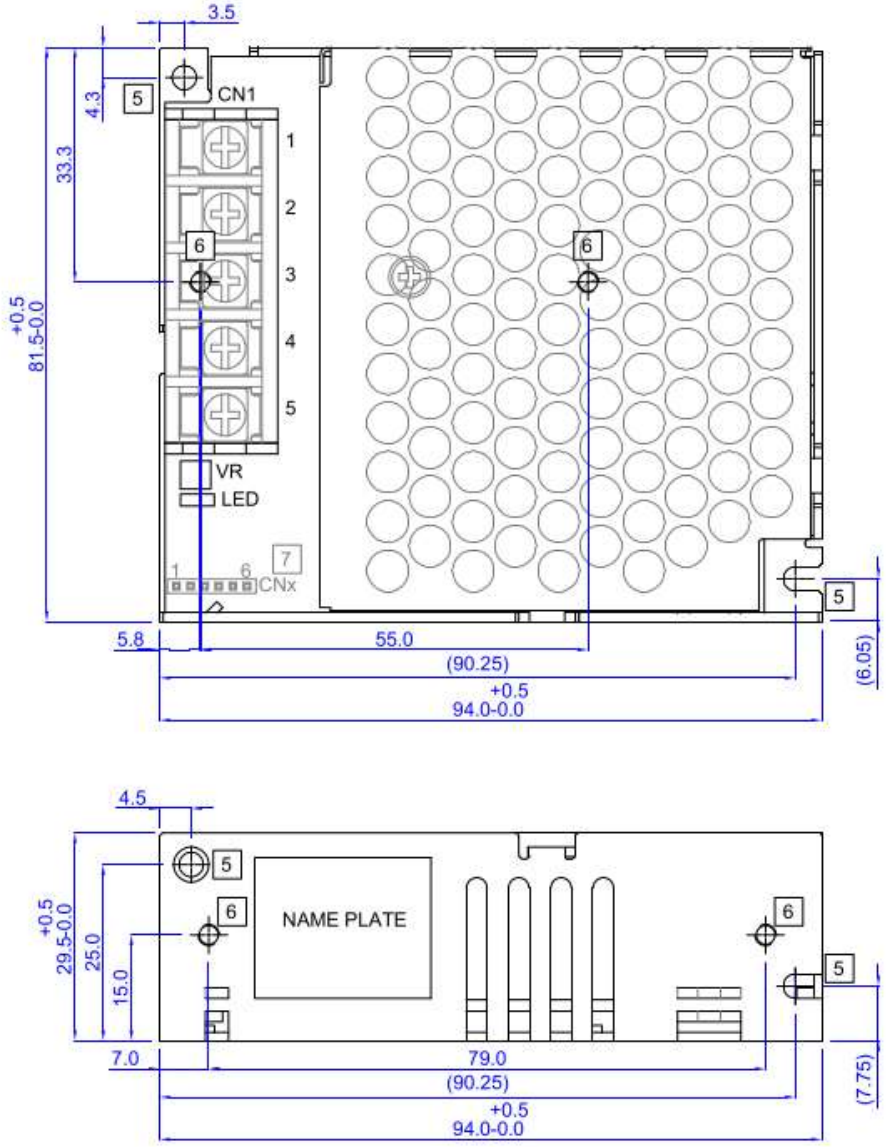


OPTION "A"
COVERED TERMINAL BLOCK WITH SUS COVER

OPTION "B"
HEADERS

OPTION "C"
HEADERS WITH SUS COVER

MECHANICAL SPECIFICATION: LV35S-XX-XXX or LV35S-XX/A-XXX



Notes:

1. All dimensions in mm.
2. Tolerances unless otherwise specified:
   .x (±0.50)
   .xx (±0.25)
3. Applicable product configuration:
   LV35S-XX-XXX: Terminal Block only
   LV35S-XX/A-XXX: Terminal Block with SUS cover

[4] Terminal Block (CN1):

Pin no.	Pin Assignment
1	L
2	N
3	FG
4	-V
5	+V or +V(C) for Option "O"

Min. 18AWG cable (UL approved 300V 85°C) with M4 Terminal Lug.
Recommended torque: 1.18 N.m (12kgf.cm) max.

[5] Customer mounting hole for M3 screw.
Recommended torque: 0.49 N.m (5kgf.cm) max.

[6] M3 Customer mounting hole for M3 screw.
Recommended torque: 0.49 N.m (5kgf.cm) max.
Max screw protrusion: 3mm.

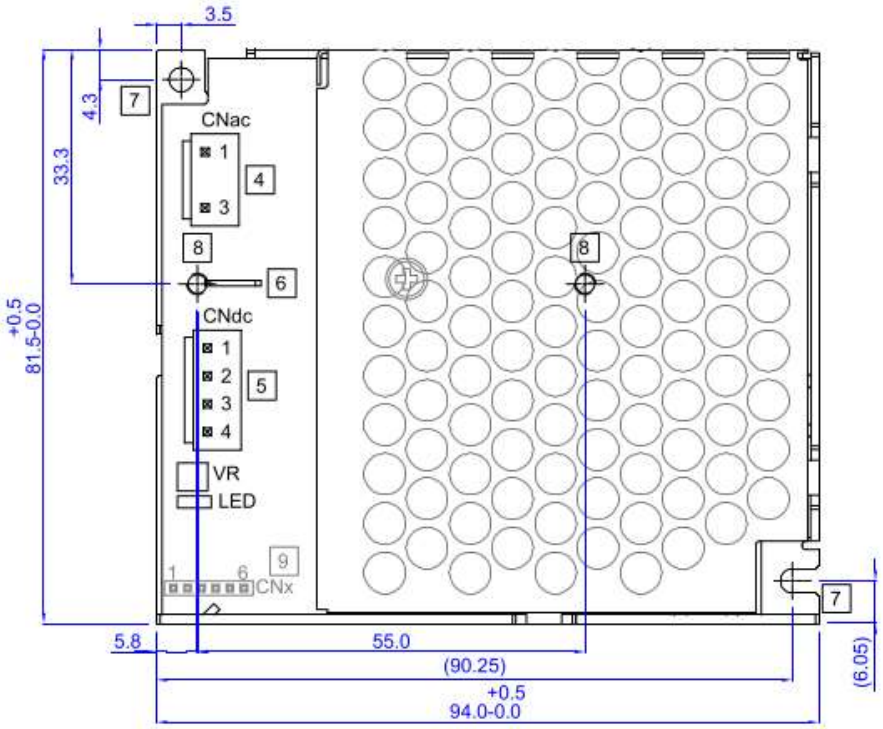
[7] Option Connector (CNx) for Option "X", "O".
Cvilux CB2262V100 or equivalent.

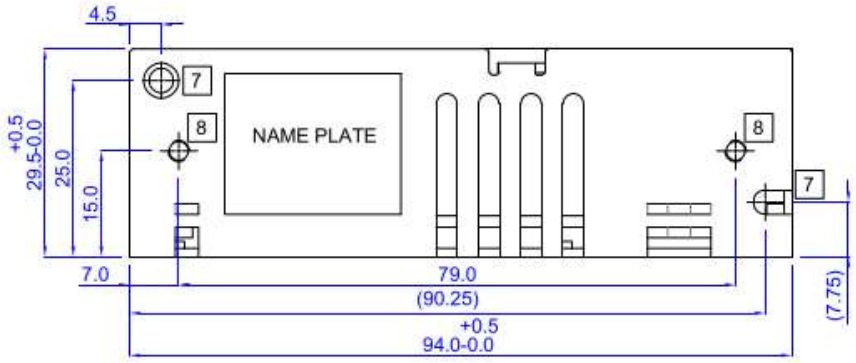
Pin no	Pin Assignment
1	+V (C)
2	-V
3	TRIM
4	ON/OFF
5	STANDBY
6	+V

Mating: Cvilux CH11 Headers or equivalent.

221010

MECHANICAL SPECIFICATION: LV35S-XX/B-XXX or LV35S-XX/C-XXX





Notes:

1. All dimensions in mm.
2. Tolerances unless otherwise specified:
   .x (±0.50)
   .xx (±0.25)
3. Applicable product configuration:
   LV35S-XX/B-XXX: Headers only
   LV35S-XX/C-XXX: Headers with SUS cover

[4] Input Connector (CNac):
Cvilux CI5203P1V00 or equivalent.

Pin no	Pin Assignment
1	L
3	N

Mating: Cvilux CI52 Housing & Terminal or equivalent.
Min. 18AWG cable (UL approved 300V 85°C).

[5] Output Connector (CNdc):
Cvilux CI5204P1V00 or equivalent.

Pin no.	Pin Assignment
1	-V
2	-V
3	-V
4	-V

Mating: Cvilux CI52 Housing & Terminal or equivalent.
Min. 18AWG cable (UL approved 300V 85°C).

[6] FG: 0.25 Faston Ground Tab.

[7] Customer mounting hole for M3 screw.
Recommended torque: 0.49 N.m (5kgf.cm) max.

[8] M3 Customer mounting hole for M3 screw.
Recommended torque: 0.49 N.m (5kgf.cm) max
Max screw protrusion: 3mm.

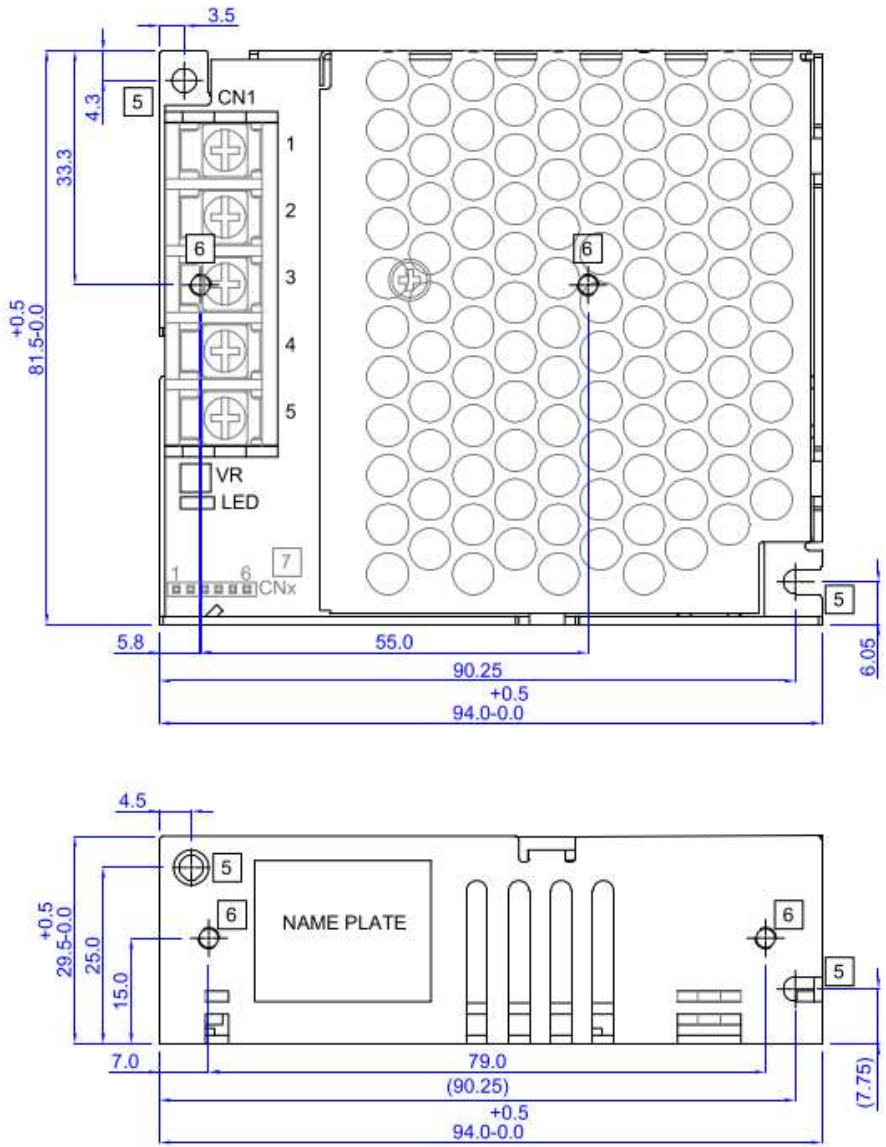
[9] Option Connector (CNx) for Option "X", "O".
Cvilux CB2262V100 or equivalent.

Pin no	Pin Assignment
1	+V (C)
2	-V
3	TRIM
4	ON/OFF
5	STANDBY
6	+V

Mating: Cvilux CH11 Headers or equivalent.

221010

MECHANICAL SPECIFICATION: LV50S-XX-XXX or LV50S-XX/A-XXX



Notes:

1. All dimensions in mm.
2. Tolerances unless otherwise specified:
   .x (±0.50)
   .xx (±0.25)
3. Applicable product configuration:
   LV50S-XX-XXX: Terminal Block only
   LV50S-XX/A-XXX: Terminal Block with SUS cover

4 Terminal Block (CN1):

Pin no.	Pin Assignment
1	L
2	N
3	FG
4	-V
5	+V or +V(C) for Option "O"

Min. 18AWG cable (UL approved 300V 85°C) with M4 Terminal Lug.
Recommended torque: 1.18 N.m (12kgf.cm) max.

5 Customer mounting hole for M3 screw.
Recommended torque: 0.49 N.m (5kgf.cm) max.

6 M3 Customer mounting hole for M3 screw.
Recommended torque: 0.49 N.m (5kgf.cm) max.
Max screw protrusion: 3mm.

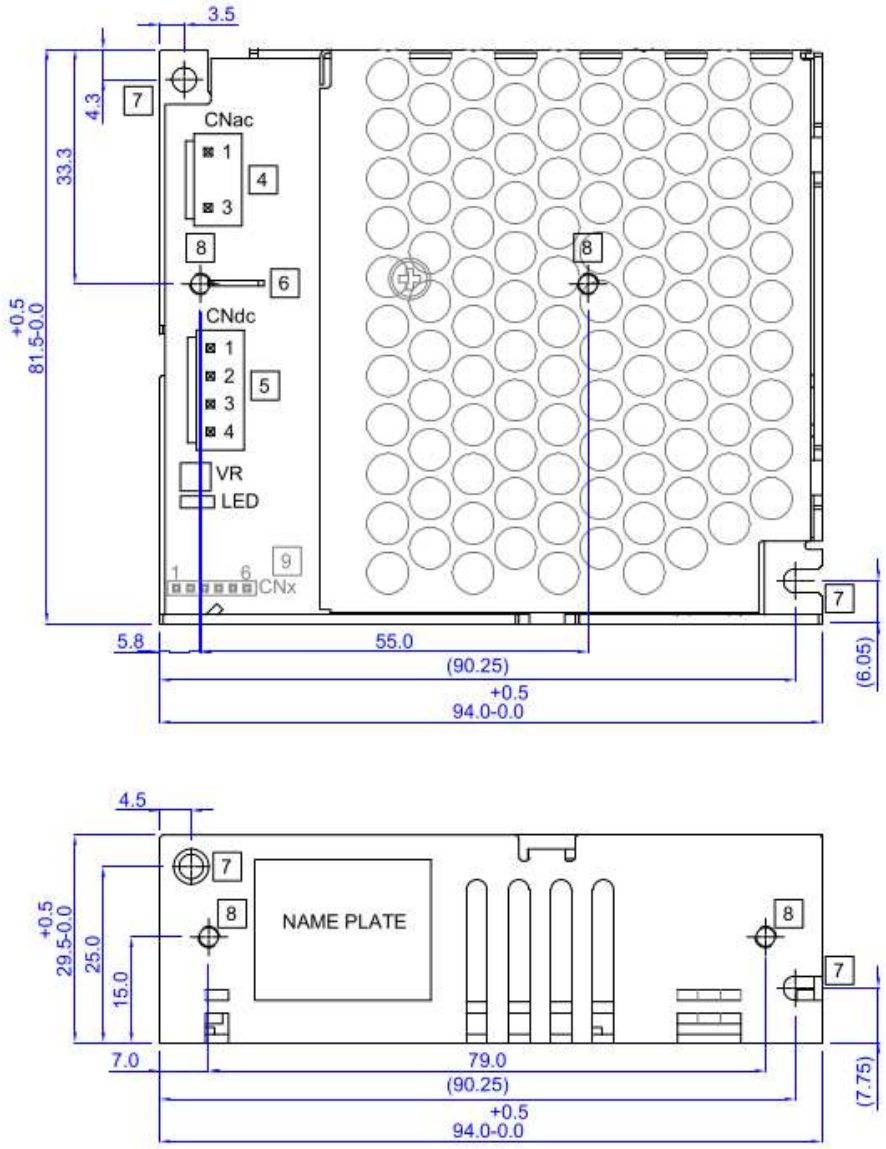
7 Option Connector (CNx) for Option "X", "O".
Cvilux CB2262V100 or equivalent.

Pin no	Pin Assignment
1	+V (C)
2	-V
3	TRIM
4	ON/OFF
5	STANDBY
6	+V

Mating: Cvilux CH11 Headers or equivalent.

221010

MECHANICAL SPECIFICATION: LV50S-XX/B-XXX or LV50S-XX/C-XXX



Notes:

1. All dimensions in mm.
2. Tolerances unless otherwise specified:
   .x (±0.50)
   .xx (±0.25)
3. Applicable product configuration:
   LV50S-XX/B-XXX: Headers only
   LV50S-XX/C-XXX: Headers with SUS cover

[4] Input Connector (CNac):
Cvilux CI5203P1V00 or equivalent.

Pin no	Pin Assignment
1	L
3	N

Mating: Cvilux CI52 Housing & Terminal or equivalent.
Min. 18AWG cable (UL approved 300V 85°C).

[5] Output Connector (CNdc):
Cvilux CI5204P1V00 or equivalent.

Pin no.	Pin Assignment
1	-V
2	-V
3	-V
4	-V

Mating: Cvilux CI52 Housing & Terminal or equivalent.
Min. 18AWG cable (UL approved 300V 85°C).

[6] FG: 0.25 Faston Ground Tab.

[7] Customer mounting hole for M3 screw.
Recommended torque: 0.49 N.m (5kgf.cm) max.

[8] M3 Customer mounting hole for M3 screw.
Recommended torque: 0.49 N.m (5kgf.cm) max
Max screw protrusion: 3mm.

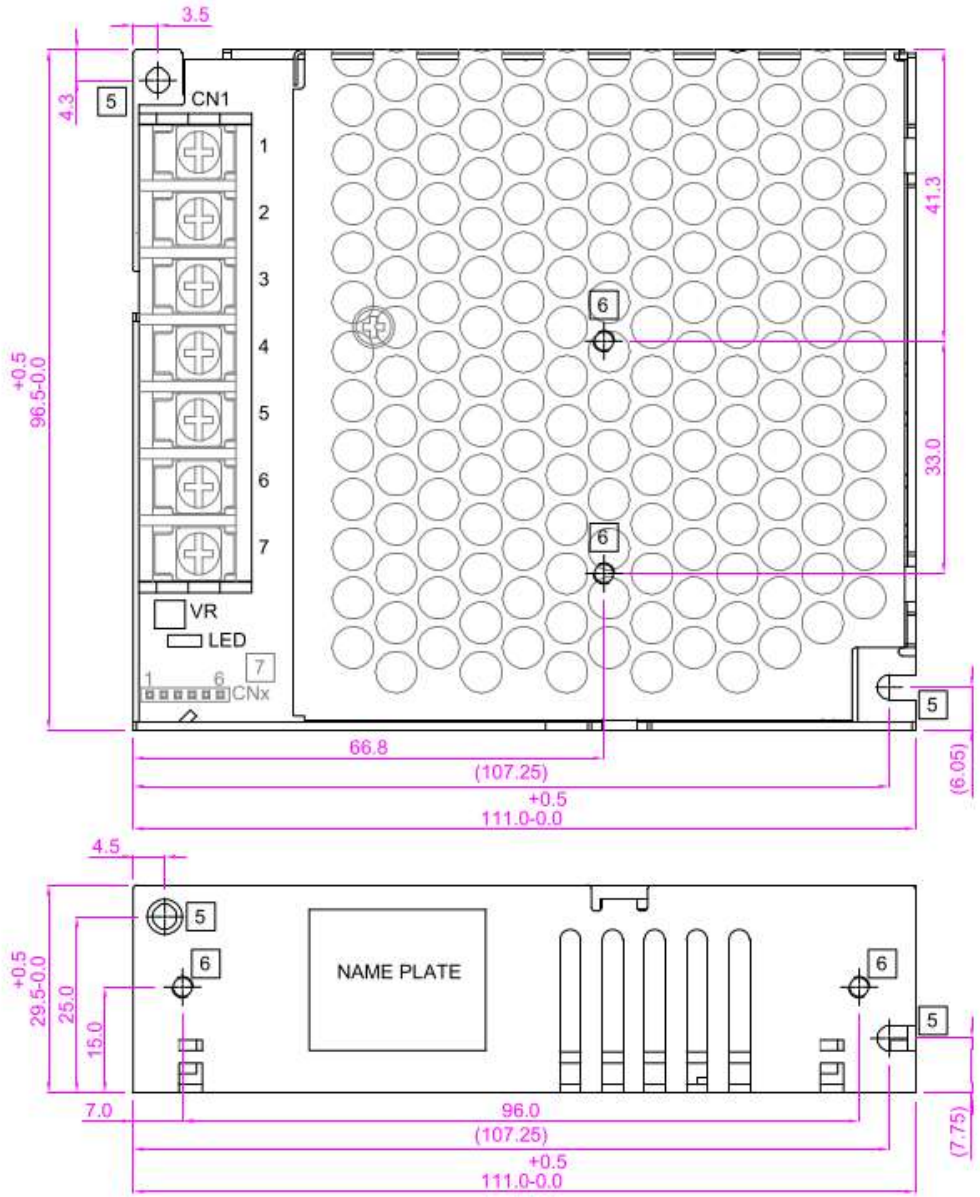
[9] Option Connector (CNx) for Option "X", "O".
Cvilux CB2262V100 or equivalent.

Pin no	Pin Assignment
1	+V (C)
2	-V
3	TRIM
4	ON/OFF
5	STANDBY
6	+V

Mating: Cvilux CH11 Headers or equivalent.

221010

MECHANICAL SPECIFICATION: LV100S-XX-XXX or LV100S-XX/A-XXX



Notes:

1. All dimensions in mm.
2. Tolerances unless otherwise specified:
   .x (±0.50)
   .xx (±0.25)
3. Applicable product configuration:
   LV100S-XX-XXX: Terminal Block only
   LV100S-XX/A-XXX: Terminal Block with SUS cover
4. Terminal Block (CN1):

Pin no.	Pin Assignment
1	L
2	N
3	FG
4	-V
5	-V
6	+V or +V(C) for Option "O"
7	+V

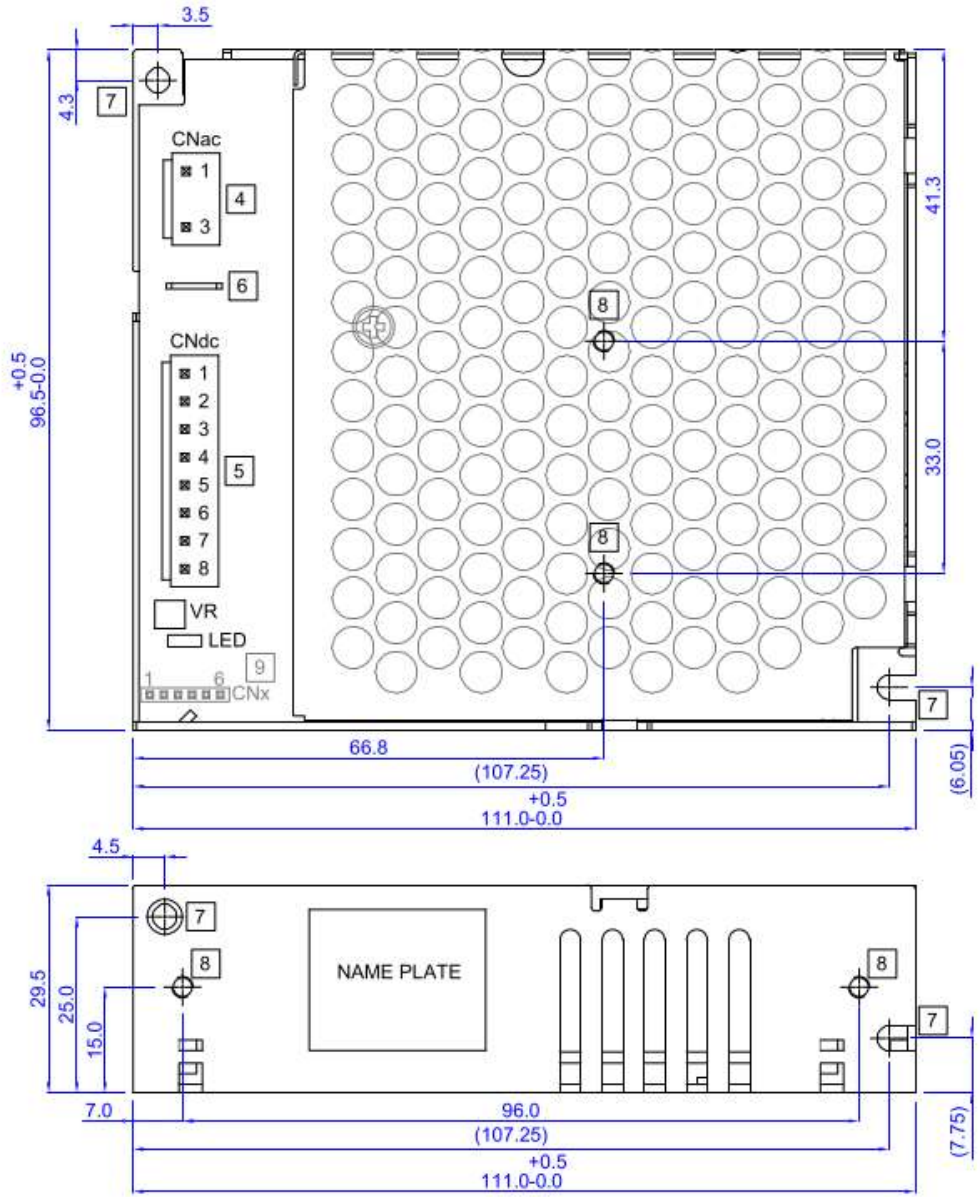
   Min. 18AWG cable (UL approved 300V 85°C) with M4 Terminal Lug.
   Recommended torque: 1.18 N.m (12kgf.cm) max.
5. Customer mounting hole for M3 screw.
   Recommend torque: 0.49 N.m (5kgf.cm) max.
6. M3 Customer mounting hole for M3 screw.
   Recommend torque: 0.49 N.m (5kgf.cm) max.
   Max screw protrusion: 3mm.
7. Option Connector (CNx) for Option "X", "O", "S".
   Cvilux CB2262V100 or equivalent.

Pin no	Pin Assignment
1	+V (C)
2	-V
3	TRIM
4	ON/OFF
5	STANDBY
6	+V

   Mating: Cvilux CH11 Headers or equivalent.

221010

MECHANICAL SPECIFICATION: LV100S-XX/B-XXX or LV100S-XX/C-XXX



Notes:

1. All dimensions in mm.
2. Tolerances unless otherwise specified:
   .x (±0.50)
   .xx (±0.25)
3. Applicable product configuration:
   LV100S-XX/B-XXX: Headers only
   LV100S-XX/C-XXX: Headers with SUS cover

[4] Input Connector (CNac):
Cvilux CI5203P1V00 or equivalent.

Pin no	Pin Assignment
1	L
3	N

Mating: Cvilux CI52 Housing & Terminal or equivalent.
Min. 16AWG cable (UL approved 300V 85°C).

[5] Output Connector (CNdc):
Cvilux CI5208P1V00 or equivalent.

Pin no.	Pin Assignment
1	-V
2	-V
3	-V
4	-V
5	+V or V(C) for Option "O"
6	+V or V(C) for Option "O"
7	+V
8	+V

Mating: Cvilux CI52 Housing & Terminal or equivalent.
Min. 16AWG cable (UL approved 300V 85°C).

[6] FG: 0.25 Faston Ground Tab.

[7] Customer mounting hole for M3 screw.
Recommended torque: 0.49 N.m (5kgf.cm) max.

[8] M3 Customer mounting hole for M3 screw.
Recommended torque: 0.49 N.m (5kgf.cm) max.
Max screw protrusion: 3mm.

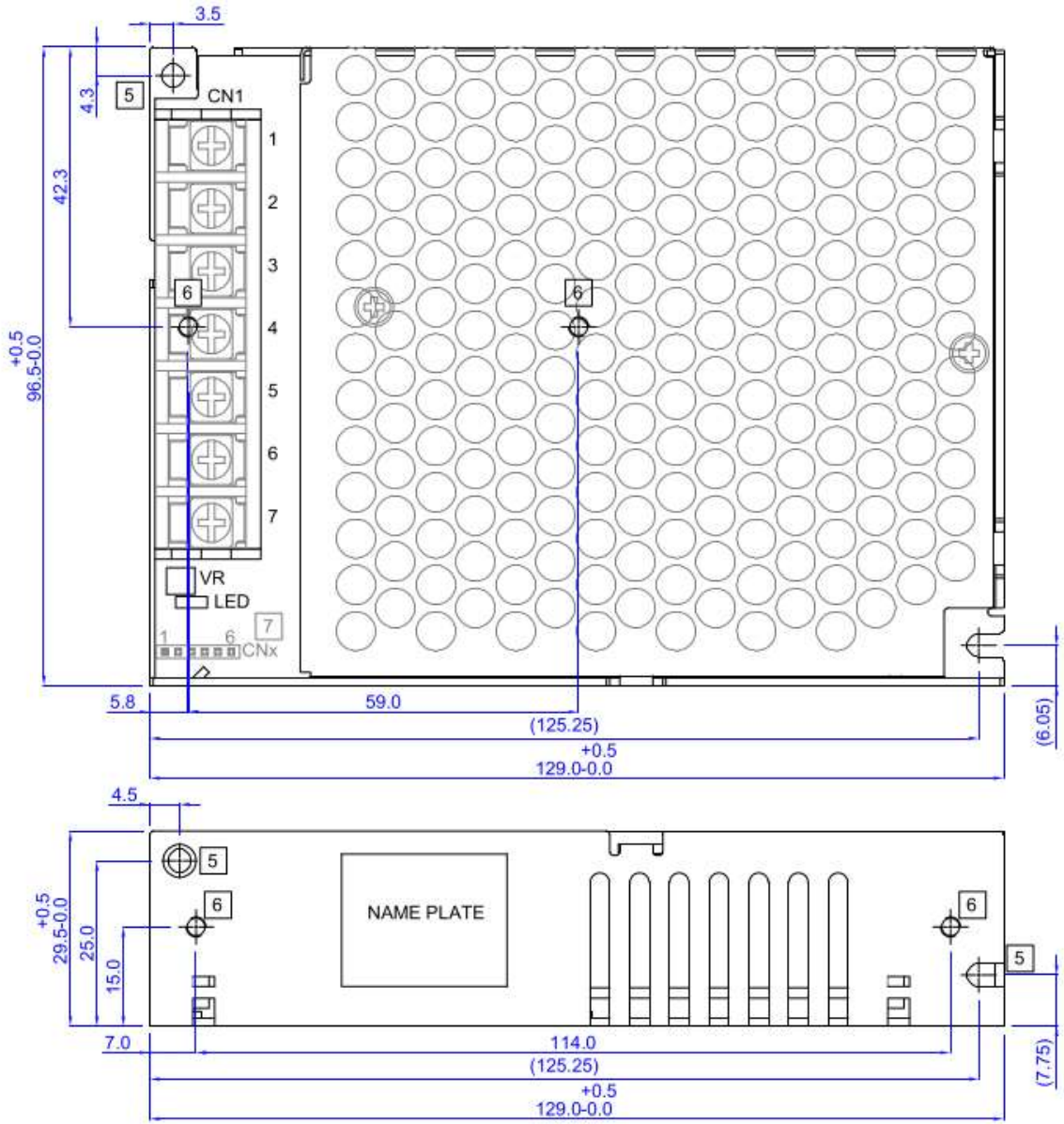
[9] Option Connector (CNx) for Option "X", "O", "S".
Cvilux CB2262V100 or equivalent.

Pin no	Pin Assignment
1	+V (C)
2	-V
3	TRIM
4	ON/OFF
5	STANDBY
6	+V

Mating: Cvilux CH11 Headers or equivalent.

221010

MECHANICAL SPECIFICATION: LV150S-XX-XXX or LV150S-XX/A-XXX



Notes:

1. All dimensions in mm.
2. Tolerances unless otherwise specified:
   .x (±0.50)
   .xx (±0.25)
3. Applicable product configuration:
   LV150S-XX-XXX: Terminal Block only
   LV150S-XX/A-XXX: Terminal Block with SUS cover
4. Terminal Block (CN1):

Pin no.	Pin Assignment
1	L
2	N
3	FG
4	-V
5	-V
6	+V or +V(C) for Option "O"
7	+V

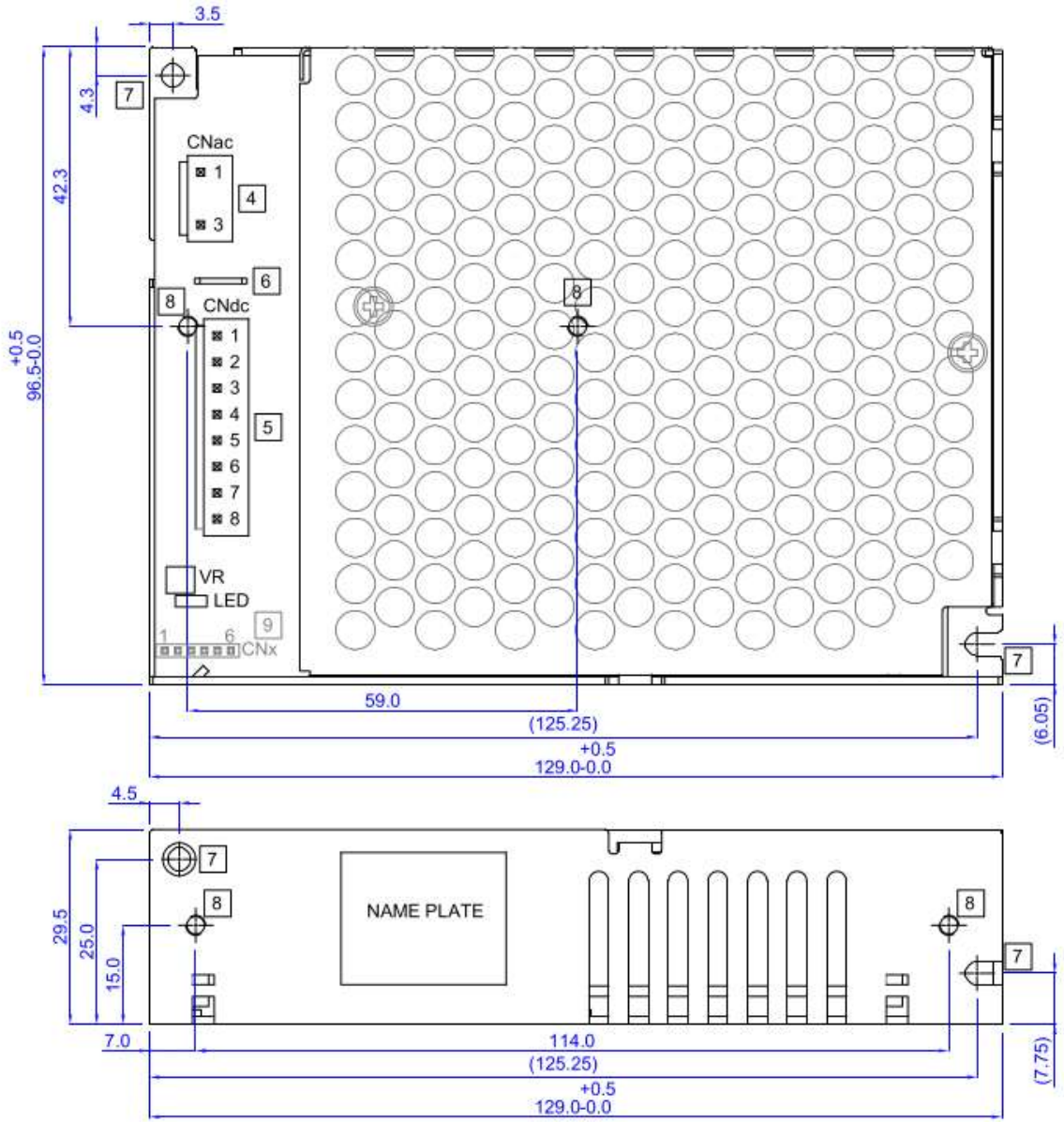
   Min. 18AWG cable (UL approved 300V 85°C) with M4 Terminal Lug.
   Recommended torque: 1.18 N.m (12kgf.cm) max.
5. Customer mounting hole for M3 screw.
   Recommend torque: 0.49 N.m (5kgf.cm) max.
6. M3 Customer mounting hole for M3 screw.
   Recommend torque: 0.49 N.m (5kgf.cm) max.
   Max screw protrusion: 3mm.
7. Option Connector (CNx) for Option "X", "O", "S".
   Cvilux CB2262V100 or equivalent.

Pin no	Pin Assignment
1	+V (C)
2	-V
3	TRIM
4	ON/OFF
5	STANDBY
6	+V

   Mating: Cvilux CH11 Headers or equivalent.

221010

MECHANICAL SPECIFICATION: LV150S-XX/B-XXX or LV150S-XX/C-XXX



Notes:

1. All dimensions in mm.
2. Tolerances unless otherwise specified:
   .x (±0.50)
   .xx (±0.25)
3. Applicable product configuration:
   LV150S-XX/B-XXX: Headers only
   LV150S-XX/C-XXX: Headers with SUS cover

[4] Input Connector (CNac):
Cvilux CI5203P1V00 or equivalent.

Pin no	Pin Assignment
1	L
3	N

Mating: Cvilux CI52 Housing & Terminal or equivalent.
Min. 16AWG cable (UL approved 300V 85°C).

[5] Output Connector (CNdc):
Cvilux CI5208P1V00 or equivalent.

Pin no.	Pin Assignment
1	-V
2	-V
3	-V
4	-V
5	+V or V(C) for Option "O"
6	+V or V(C) for Option "O"
7	+V
8	+V

Mating: Cvilux CI52 Housing & Terminal or equivalent.
Min. 16AWG cable (UL approved 300V 85°C).

[6] FG: 0.25 Faston Ground Tab.

[7] Customer mounting hole for M3 screw.
Recommended torque: 0.49 N.m (5kgf.cm) max.

[8] M3 Customer mounting hole for M3 screw.
Recommended torque: 0.49 N.m (5kgf.cm) max.
Max screw protrusion: 3mm.

[9] Option Connector (CNx) for Option "X", "O", "S".
Cvilux CB2262V100 or equivalent.

Pin no	Pin Assignment
1	+V (C)
2	-V
3	TRIM
4	ON/OFF
5	STANDBY
6	+V

Mating: Cvilux CH11 Headers or equivalent.

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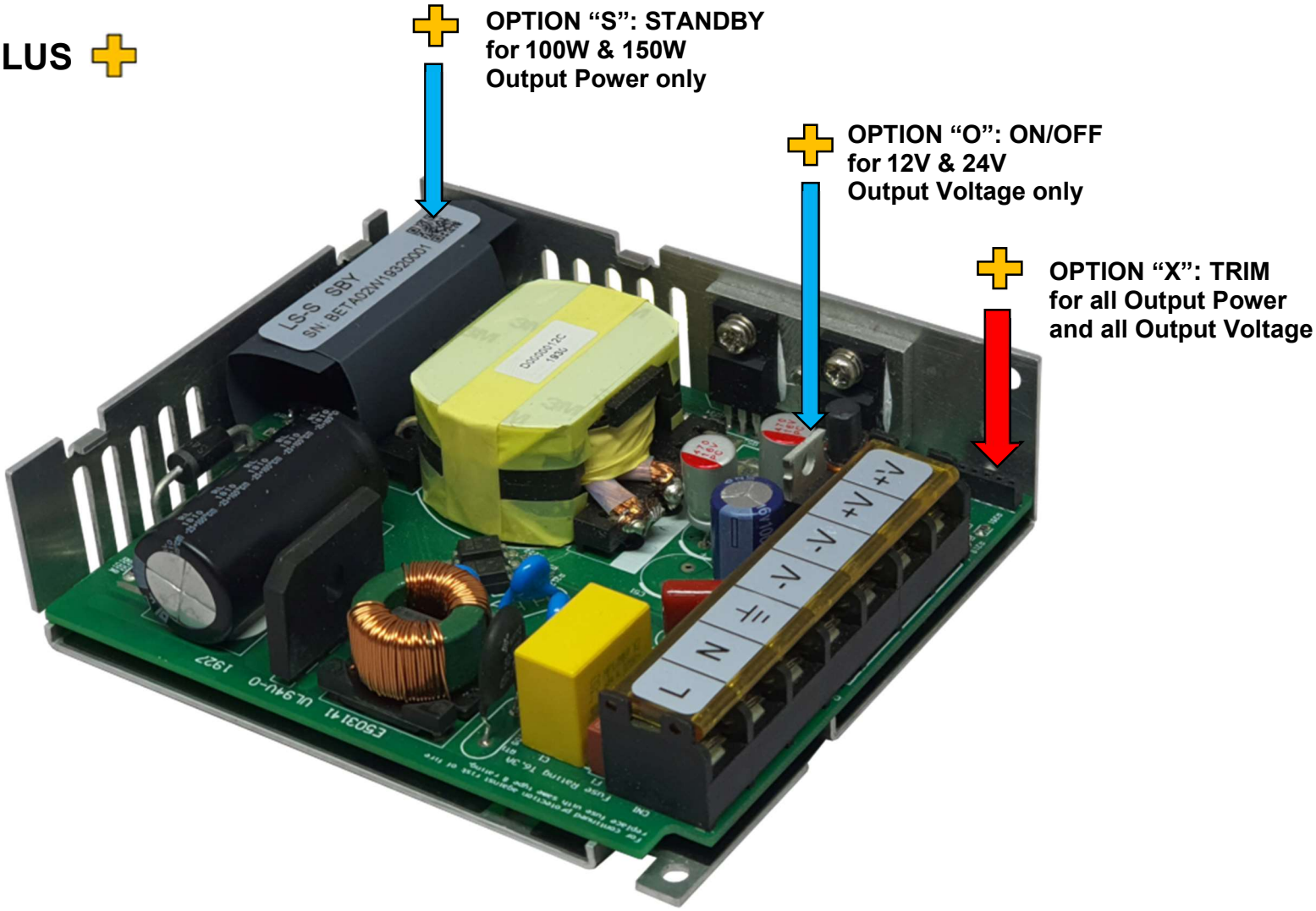
UPGRADEABLE OPTIONS

LV PLUS ✚



LV PLUS

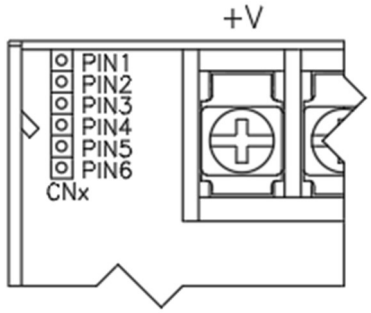
LV PLUS provides users with extra connectivity with TRIM, ON/OFF and STANDBY functions via an additional 6-pin 2mm pitch connector; CNx.
The availability of these options is tabulated below. See Note 2 for the CNX pin assignments and application notes for details.

OPTIONS			MODEL				OUTPUT VOLTAGE			
OPTIONS	CODE	Notes	LV35S	LV50S	LV100S	LV150S	5V	12V	24V	48V
TRIM	"X"	– CNX connectivity for users' access control. – Includes trimming capability of the Output Voltage between 0% to -10%. – Available for all output powers and all output voltages.	●	●	●	●	●	●	●	●
ON/OFF	"O"	– CNX connectivity with additional circuitry to provide ON/OFF option. – Do not load +V(C) terminal's output current above 7A. – Available for 12V and 24V output voltage only.	●	●	●	●	NA	●	●	NA
STANDBY	"S"	– CNX connectivity with addition daughter board to provide STANDBY option. – With Standby option built-in, specification for "Rated Output Power" will be reduced by 10W. For example, the Rated Output Power for LV100S-12 with Standby (LV100S-12/XS) will be 92.4W. – Available for 100W & 150W output power only.	NA	NA	●	●	●	●	●	●

Notes:

1. NA = Not Available, • = Available
2. PIN ASSIGNMENT OF CNx

PIN	SYMBOL	IN/OUT	FUNCTION
1	+V(C)	OUT	Connect directly to +V(C) terminal to monitor +V(C)'s status
2	-V	OUT	Output supply; directly connected to -V bus
3	TRIM	IN	Input signal to trim down voltage level of +V & +V(C)
4	ON/OFF	IN	Input signal to control switching On and Off of +V(C) output
5	STANDBY	IN	Input Signal to initiate Standby mode
6	+V or +12Vdc	OUT	Output supply; directly connected to +V bus or 12V for power supply with Standby Option "S"



3. "+V(C)" refers to the affected "+V" terminal when option "O" is selected. Physically there is only "+V" indication. Please refer to application notes to locate which "+V" terminal will be converted to "+V(C)" function.

LV PLUS CONFIGURATION

OPTION	OUTPUT POWER	OUTPUT VOLTAGE			
		5V	12V	24V	48V
X: TRIM	35W	LV35S-5/□-X	LV35S-12/□-X	LV35S-24/□-X	LV35S-48/□-X
	50W	LV50S-5/□-X	LV50S-12/□-X	LV50S-24/□-X	LV50S-48/□-X
	100W	LV100S-5/□-X	LV100S-12/□-X	LV100S-24/□-X	LV100S-48/□-X
	150W	LV150S-5/□-X	LV150S-12/□-X	LV150-S24/□-X	LV150S-48/□-X
O: ON/OFF	35W	NA	LV35S-12/□-XO	LV35S-24/□-XO	NA
	50W	NA	LV50S-12/□-XO	LV50S-24/□-XO	NA
	100W	NA	LV100S-12/□-XO	LV100S-24/□XO	NA
	150W	NA	LV150S-12/□-XO	LV150S-24/□-XO	NA
S: STANDBY	35W	NA	NA	NA	NA
	50W	NA	NA	NA	NA
	100W	LV100S-5/□-XS	LV100S-12/□-XS	LV100S-24/□XS	LV100S-48/□-XS
	150W	LV150S-5/□-XS	LV150S-12/□-XS	LV150S-24/□-XS	LV150S-48/□-XS
O: ON/OFF AND S: STANDBY	35W	NA	NA	NA	NA
	50W	NA	NA	NA	NA
	100W	NA	LV100S-12/□-XOS	LV100S-24/□XOS	NA
	150W	NA	LV150S-12/□-XOS	LV150S-24/□-XOS	NA

Note: □ refers to Mechanical Options

APPLICATION NOTES: TRIM FUNCTION

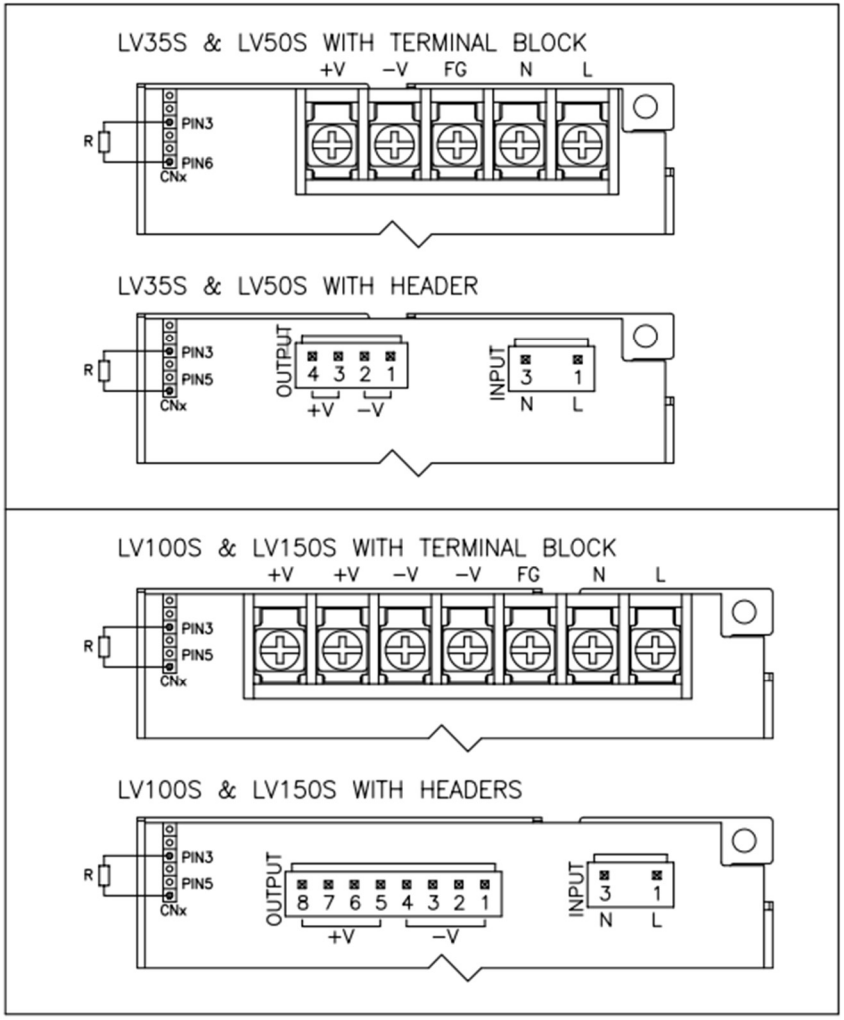
TRIM FUNCTION: PIN 3 (AVAILABLE FOR ALL OUTPUT VOLTAGES AND OUTPUT POWERS)

1. By connecting a resistor between PIN 3 and PIN6, the output voltage +V can be trimmed down by 5% and 10% respectively.
2. This would be useful in varying the brightness of LED arrays by trimming their supplied voltage.

a) The trimming resistor value to trim the output voltage as tabulated below:

Rated Output Voltage	Resistor value (see notes)			
	5V	12V	24V	48V
100%	No need	No need	No need	No need
95%	69.3 kΩ	426.0 kΩ	1098.2 kΩ	2460.5 kΩ
90%	31.4 kΩ	202.7 kΩ	527.2 kΩ	1185.5 kΩ

Notes:
1. Approximate values suggested.
2. It is advisable that the user verifies to determine the resistor value to be used.



APPLICATION NOTES: TRIM FUNCTION WITH STANDBY OPTION (“XS”)

TRIM FUNCTION: PIN 3 (OPTION ‘S” FOR LV100S AND LV150S ONLY)

1. There are 2 methods to trim the output voltage of a power supply with Option “S”:
   a) Using a resistor or
   b) Combination of resistor and a linear or switching voltage regulator, 7805 (rating >0.1A & >20V).

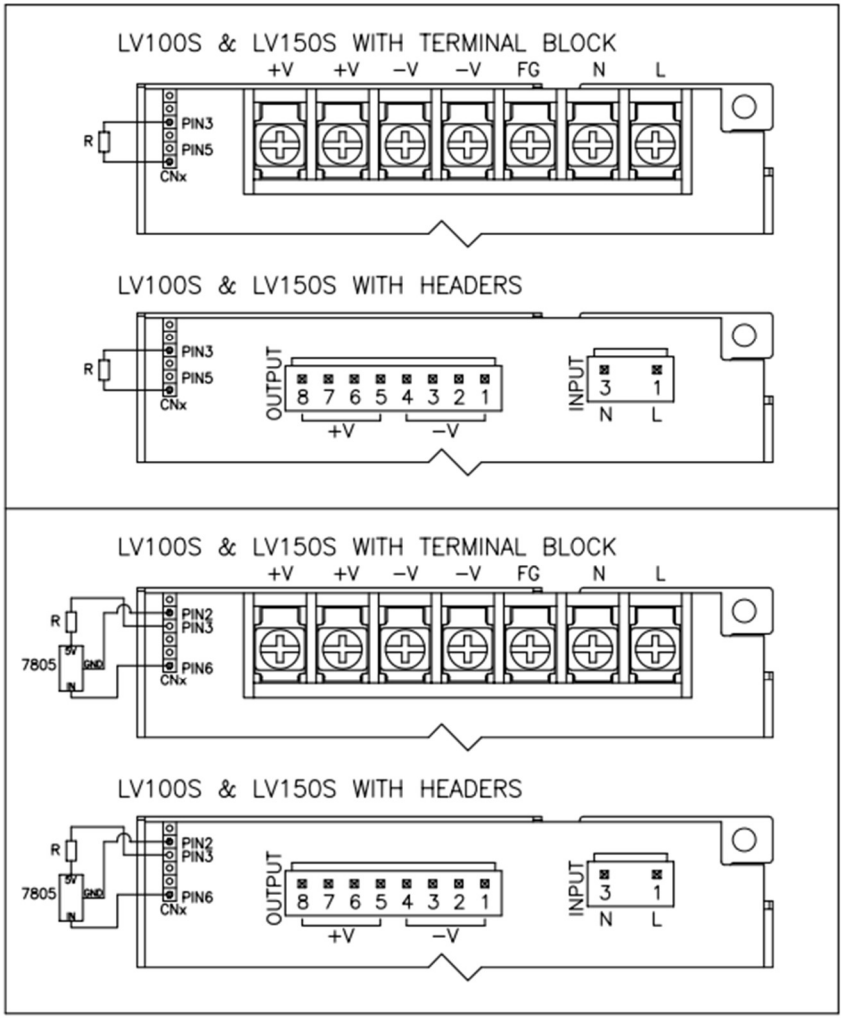
i. To trim the output voltage of +V using a resistor only, the trimming resistor value is as tabulated below:

Rated Output Voltage	Resistor value (see notes)			
	5V	12V	24V	48V
100%	No need	No need	No need	No need
95%	292.0 kΩ	454.7 kΩ	514.1 kΩ	542.6 kΩ
90%	146.0 kΩ	227.3 kΩ	257.0 kΩ	271.3 kΩ

ii. For Option with Standby (Option “XS”), a more accurate output voltage (+V) trimming can be achieved using a combination of resistor and a voltage regulator, the trimming resistor value is as tabulated below:

Rated Output Voltage	Resistor value (see notes)			
	5V	12V	24V	48V
100%	NA	No need	No need	No need
95%	NA	119.8 kΩ	135.5 kΩ	143.0 kΩ
90%	NA	59.9 kΩ	67.7 kΩ	71.5 kΩ

Notes:
1. Approximate values suggested.
2. It is advisable that the user verifies to determine the resistor value to be used.



APPLICATION NOTES: TRIM FUNCTION

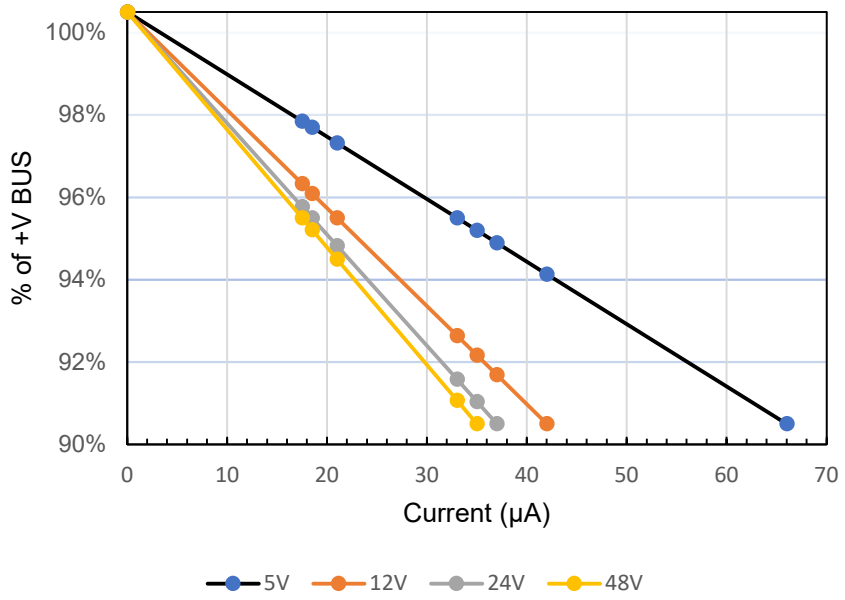
TRIM FUNCTION: PIN 3 (AVAILABLE FOR ALL OUTPUT VOLTAGES AND OUTPUT POWERS)

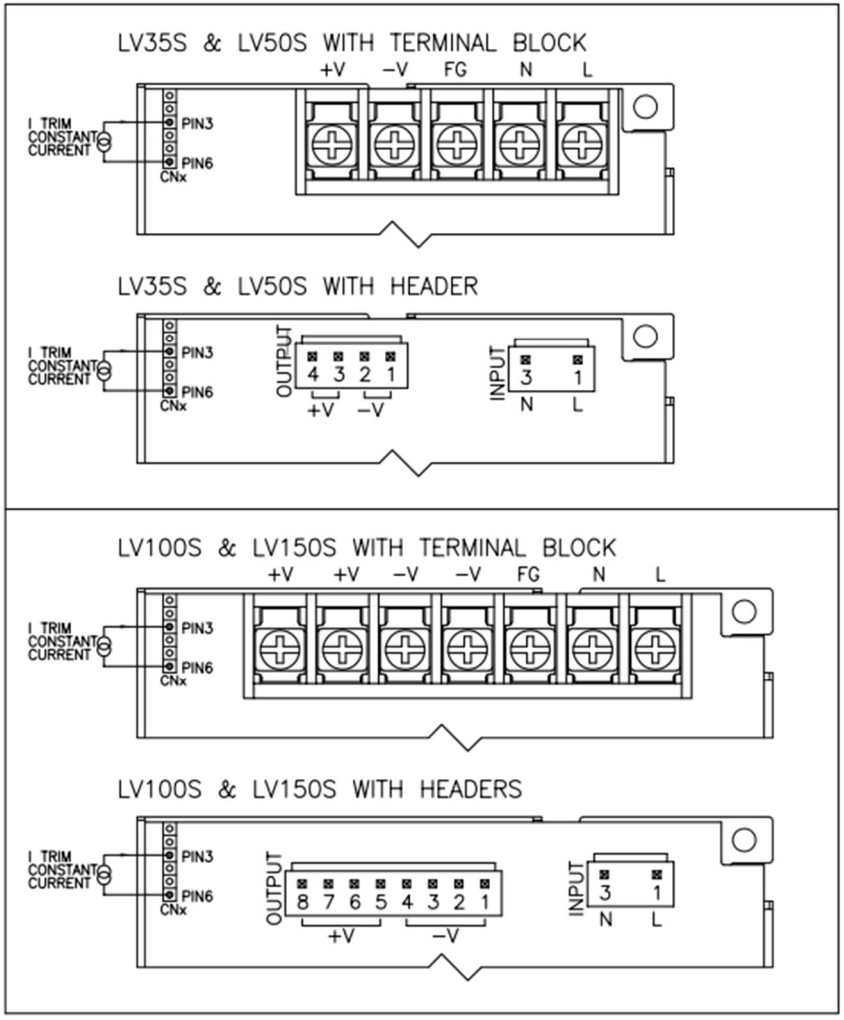
1. By sending a small current into PIN3, output voltage +V can be trimmed down to desired level.
2. This would be useful in varying the brightness of LED arrays by trimming their supplied voltage.
3. Do note that this option provides up to 0 ~ -10% trimming range only. Beyond this range, please refer to factory for customization.

a) To trim output voltage of +V, set a constant current flow into PIN 3 as tabulated below:

Rated Output Voltage	Resistor value			
	5V	12V	24V	48V
100%	No need	No need	No need	No need
95%	33.0 kΩ	21.0 kΩ	18.5 kΩ	17.5 kΩ
90%	66.0 kΩ	42.0 kΩ	37.0 kΩ	35.0 kΩ

(I TRIM μA) vs (+V BUS % of rated voltage)





APPLICATION NOTES: ON/OFF FUNCTION

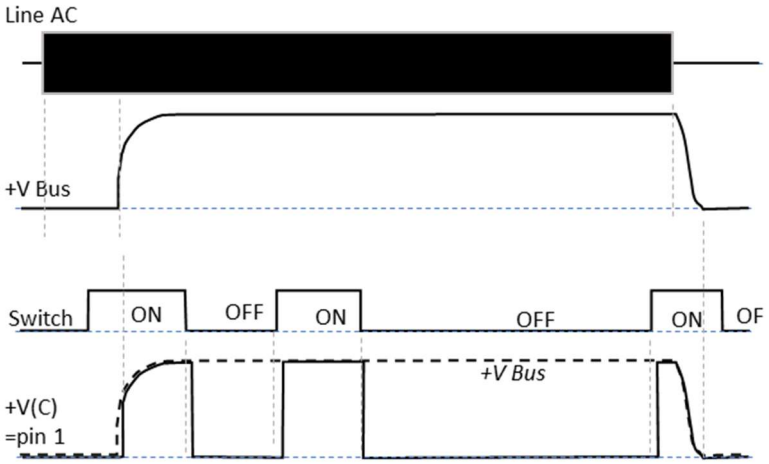
ON/OFF FUNCTION: PIN 4 & PIN 6 (OPTION "O" FOR 12V & 24 OUTPUT VOLTAGE ONLY)

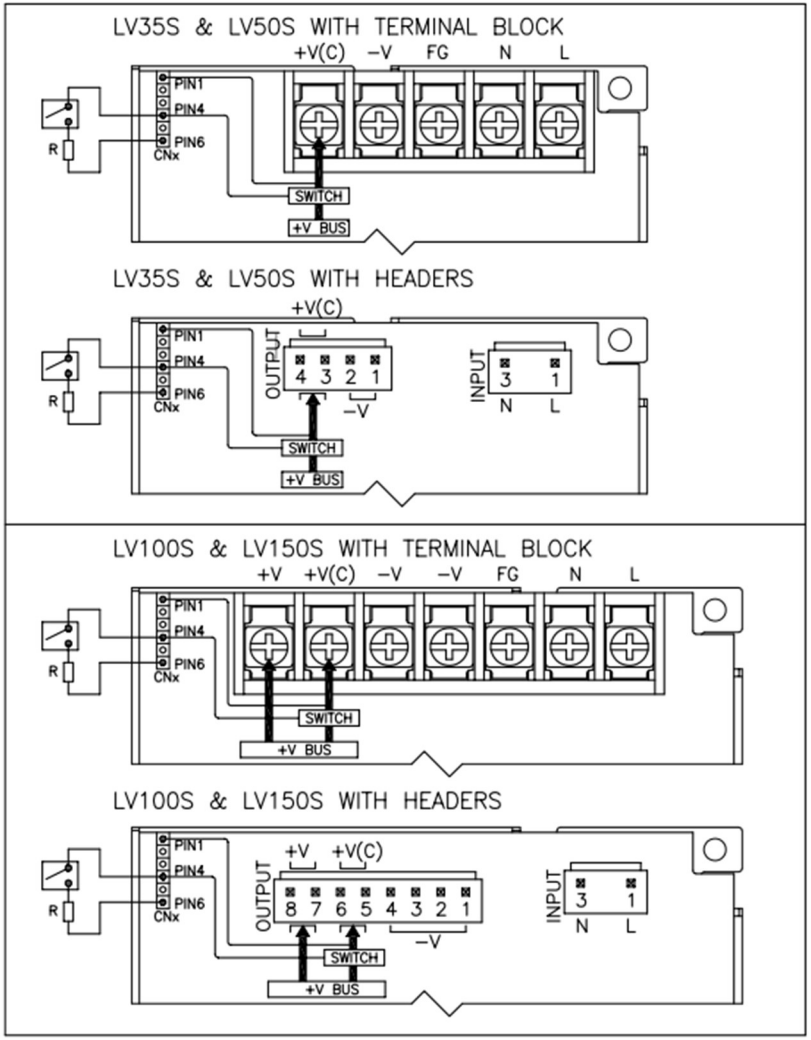
1. Option "O" power supply comes with one of +V terminal converted to +V(C) function, which output ON/OFF is controlled by PIN 4.
2. In Option "O" power supply, connecting PIN 4 to PIN 6 via a resistor would enable the control of output voltage +V(C).
3. Note: "+V(C)" refer to the affected "+V" terminal when option is selected. Physically only "+V" indicated on the terminal block. Please refer to below to locate the "+V" terminal to be converted to "+V(C)" function for terminal block and header.

a) **No external power supply is needed** to activate ON/OFF function.
b) Connect PIN 4 & PIN 6 using a resistor (see table below).

Output	Resistor
5V	No Option "O"
12V	1kΩ
24V	10kΩ
48V	No Option "O"

c) Switch can be in the form of mechanical or electrical switch (relay, optocoupler, microprocessor, transistor, etc).
d) PWM application is possible, frequency not exceeding 10kHz is recommended.
e) Voltage drops between +V Bus and +V(C) is less than 12 mV/A.
f) PIN 1 is connected to +V(C) and it is used as feedback to monitor whether +V(C)'s voltage has been correctly switched ON or OFF.





APPLICATION NOTES: STANDBY FUNCTION

STANDBY FUNCTION: PIN 5, PIN 2 & PIN 6 (OPTION 'S" FOR LV100S AND LV150S ONLY)

1. Power supplies with option S will have an additional auxiliary power supply assembled in them.
2. This will respond to PIN 5 "STANDBY" signal to turn both +V Bus ON/OFF.
3. When +V Bus is OFF, the power supply will go into Standby Mode.

a) Voltage into PIN 5 need not be connected from external power supply. Easily connect to PIN 6 via resistor (4.7kohm). Switch can be in the form of mechanical or electrical switch (relay, optocoupler, microprocessor, transistor, etc).
b) PWM application is NOT Guaranteed. Do not operate in PWM mode.
c) Standby Mode is useful to allow users' system to operate drawing minimal AC line input power (<0.5W @ 230Vac) by shutting down main power supply.
d) At the same time system could draw limited amount of power (0~5W) from STANDBY +12V to run background processes to wait for resume-signal to release from Standby Mode.
e) After release from Standby Mode, +V and +V(C) will have soft start rise-up whereby the rise-up time to reach 90% of rated level will be 10~50ms.
f) PIN 6 is connected to STANDBY +12V; PIN 2 is connected to STANDBY -12V and -V BUS.
g) Output rated power will be 10W lower accordingly:

LV100S Product configuration				
Output Rated	5/□-XS	12/□-XS or 12/□-XOS	24/□-XS or 24/□-XOS	48/□-XS
Voltage	5V	12V	24V	48V
Current	16.00A	7.70A	4.10A	2.10A
Power	80W	92.4W	98.4W	100.8W

LV100S Product configuration				
Output Rated	5/□-XS	12/□-XS or 12/□-XOS	24/□-XS or 24/□-XOS	48/□-XS
Voltage	5V	12V	24V	48V
Current	20.00A	11.70A	6.10A	3.10A
Power	100W	140.4W	146.4W	148.8W