

## Features

- Single Outputs up to 15A
- Input/Output 1.6kVDC Isolation
- Adjustable Output Voltage
- No Minimum Load
- Under -Voltage Lockout
- Industry Standard Footprint
- Fixed Operating Frequency
- Halt Tested
- Compact 61.0 x 57.91 x 12.7mm Package
- High Efficiency to 91%

**INNOLINE**  
DC/DC-Converter

## RP50-S Series

### 50 Watt Single Output

#### Selection Guide

Part Number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (A)	Line Regulation (mV)	Load Regulation (mV)	Input Current (A)	Efficiency %
<b>Single Output</b>							
RP50-241.8S	18 – 36	1.8	15	4	6	1.36	86
RP50-242.5S	18 – 36	2.5	15	5	8	1.86	87
RP50-243.3S	18 – 36	3.3	15	7	10	2.40	89
RP50-2405S	18 – 36	5	10	10	15	2.40	90
RP50-2415S	18 – 36	15	3.3	30	45	2.40	89
RP50-481.8S	36 – 75	1.8	15	4	6	1.36	87
RP50-482.5S	36 – 75	2.5	15	5	8	1.86	89
RP50-483.3S	36 – 75	3.3	15	7	10	2.40	90
RP50-4805S	36 – 75	5	10	10	15	2.40	91
RP50-4815S	36 – 75	15	3.3	30	45	2.40	90



**RECOM**

#### Notes:

1. Maximum output deviation is 10% inclusive of remote sense. If remote sense is not being used, the +Vsense should be connected to its corresponding +Vout
2. Measured with a 1uF M/C and a 10uF T/C.
3. An external filter capacitor is required for normal operation. The capacitor should be capable of handling 1A ripple current for 48V/24V models. RECOM suggests: Nippon chemi-con KMF series, 220µF/100V, ESR 90mΩ.
4. The negative/ positive logic and pin length are optional ( see table ). The pin voltage is referenced to negative input.
5. Heat sink is optional and P/N: 7G-0021, 7G-0022, 7G-0023, 7G-0024.
6. The RP50 meets level A and level B conducted emissions only with external components connected before the input pin to the converter.
7. Maximum value at nominal input voltage and full load.
8. Typical value at nominal input voltage and full load.
9. BASEPLATE GROUNDING : Base-plate should be grounded at one of the four screw bolts prior to operation.
10. The converter is provided by basic insulation.
11. "N" for Negative remote ON/OFF.
12. "P" for Positive remote ON/OFF.

**Specifications (refer to the standard application circuit, Ta: 25°C)**

Input Voltage Range	18 - 36, 36-75VDC	(24, 48V nom.)
Unde-Voltage Lockout Start-up Voltage	24V input 48V input	17V typ. 34V typ.
Unde-Voltage Lockout Shutdown Voltage	24V input 48V input	15V typ. 32V typ.
Input Filter (Note 3)		L-C type
Input voltage variation	dv/dt	5V/ms max (Complies with ETS300 132 part4.4)
Input Surge Voltage 100ms max	24V input 48V input	50VDC 100VDC
Start up time	Nominal Vin and constant resistive load	25ms typ.
Input Reflected-Ripple Current	24V input	50mA <sub>p-p</sub>
(5Hz to 20Hz, 12μH Source impedance)	48V input	20mA <sub>p-p</sub>
Remote ON/OFF (Note 4)		
(Positive logic)	ON=Open or 3.5V < Vr < 15V, OFF=Short or 0V < Vr < 1.2V,	I <sub>N</sub> =50μA max. I <sub>N</sub> =1mA max.
(Negative logic)	ON=Short or 0V < Vr < 1.2V, OFF=Open or 3.5V < Vr < 15V,	I <sub>N</sub> =1mA max. I <sub>N</sub> =50μA max.
Continuous Output Power		50W max.
Output Voltage Accuracy (Full load and nominal Vin)		±1.5%
Output Voltage Adjustment (Note 1)		+10%, -20%
Minimum Load		0%
Line Regulation	LL to HL at FL	See table
Load Regulation	0% to 100% FL	See table
Remote Sense (Note 1)		10% of Vout
Ripple and Noise 20MHz bandwidth (Note 2)		100mV <sub>p-p</sub>
Temperature Coefficient		±0.02%/°C
Transient Response Recovery Time (25% load step change)		200us
Over Voltage Protection threshold (Hiccup)		115% ~ 130% of Vout
Over Current Protection threshold		110% ~ 140% of Iout Rated
Short Circuit Protection		Hiccup, Automatic recovery
Efficiency (at nominal input voltage, full load)		up to 91%.
Isolation Voltage	Input to Output Input to Case Output to Case	1.600VDC min. 1.000VDC min. 1.000VDC min.
Isolation Resistance		10 <sup>7</sup> ohms min.
Isolation Capacitance		2.500pF max.
Operating Frequency		300KHz typ.
Operating Temperature Range		-40°C to +100°C (base plate)
Over Temperature Protection		110°C
Storage Temperature Range		-55°C to +125°C
Humidity max., Non-condensing		95%
Thermal Shock		MIL-STD-810D

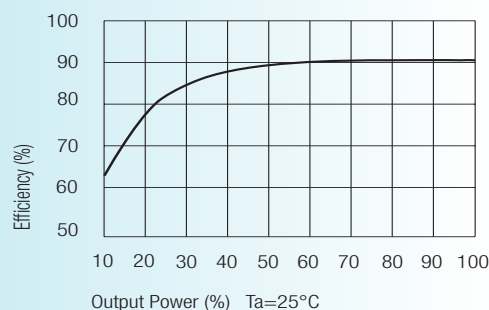
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**Specifications (refer to the standard application circuit, Ta: 25°C)**

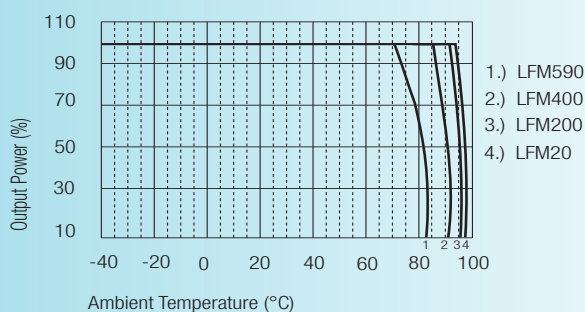
Vibration	10 ~ 55Hz 2G, 3minutes period, 30minutes analog	X, Y and Z
Conducted Emissions	EN55022 (Note 7)	Level A
	EN55022 (Note 7)	Level B
Radiated Emissions	EN55022	Level A
ESD	EN61000-4-2	Perf. Criteria2
Radiated Immunity	EN61000-4-3	Perf. Criteria2
Fast Transient	EN61000-4-4	Perf. Criteria2
Surge	EN61000-4-5	Perf. Criteria2
Conducted Immunity	EN61000-4-6	Perf. Criteria2
Case Material	Open with Aluminium base plate	
Weight	50g	
MTBF Belcore TR-NWT-000332, Tc=40°C, Io=80% max.	3 x10 <sup>6</sup> hrs	

**Characteristics**

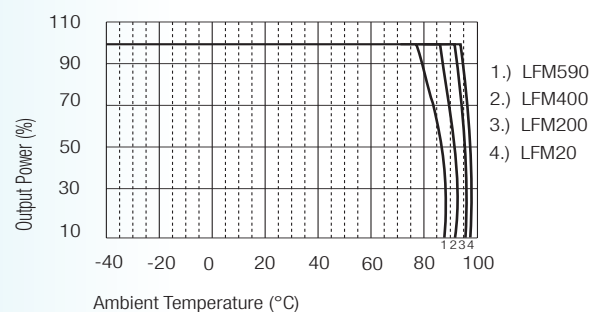
## Efficiency VS Output Load



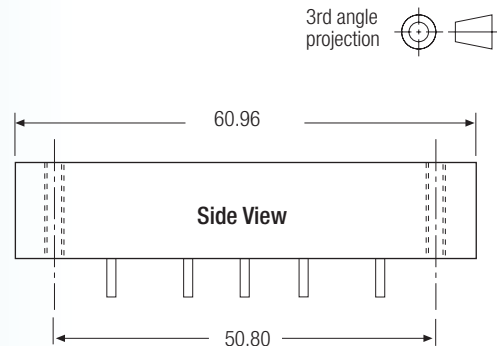
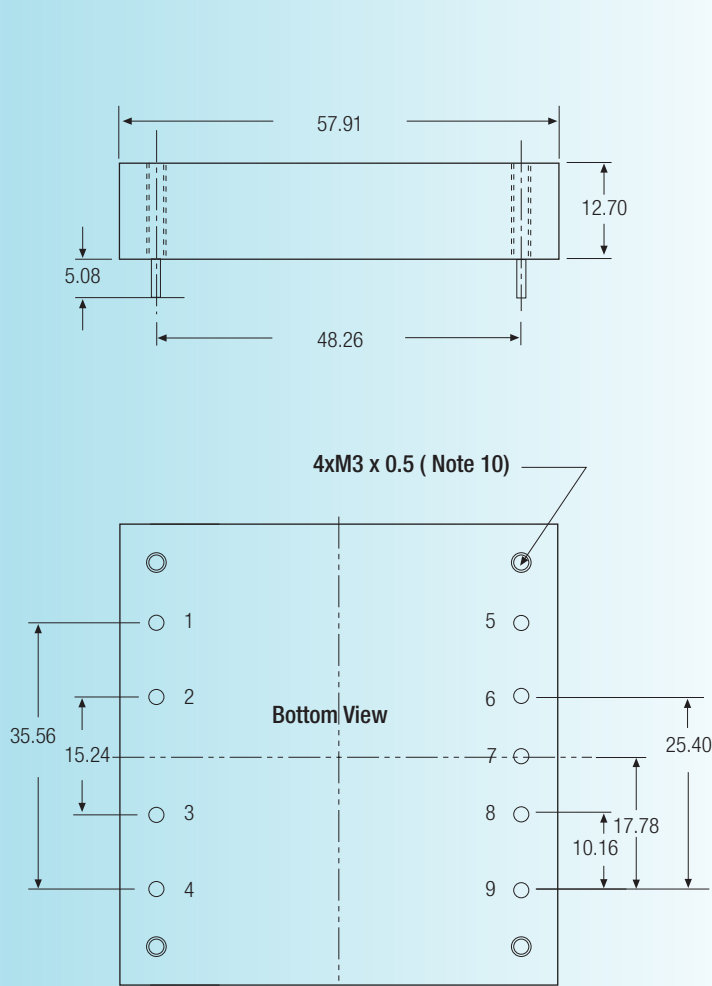
## 48V Input Without Heatsink



## 48V Input With Heatsink (7G-0022)



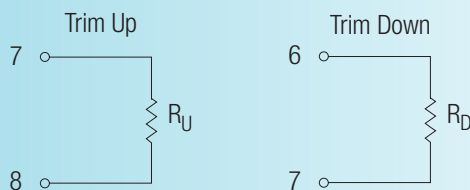
Package Style and Pinning (mm)



Pin Connections		
Pin #	Function	Pin Ø
1	-Vin	1.016 mm
2	Case	1.016 mm
3	Remote ON/OFF	1.016 mm
4	+Vin	1.016 mm
5	-Vout	2.032 mm
6	-Vsense	1.016 mm
7	Trim	1.016 mm
8	+Vsense	1.016 mm
9	+Vout	2.032 mm
XX.X ± 0.5 mm		
XX.XX ± 0.25 mm		
Pin pitch tolerance 0.35mm		

External Output Trimming

Output can be externally trimmed by using the method shown below.  
See application notes for values.



Product Options Table

Option	Suffix
Negative remote ON/OFF logic, 0.20" pin length (standard)	
Negative remote ON/OFF logic, 0.145" pin length	L
Negative remote ON/OFF logic, 0.11" pin length	K
Positive remote ON/OFF logic, 0.20" pin length	P
Positive remote ON/OFF logic, 0.145" pin length	S
Positive remote ON/OFF logic, 0.11" pin length	M

Example: RP50-483.S/P