Multi-function and high-reliability DC input 3-output type

TDK Switching Power Supply

R SERIES TDR-M/TDR-H

[FEATURES]

- DC.24V input (TDR-M), DC.48V input (TDR-H).
  High-reliability 3-output power supply.
- Compact, lightweight, and high efficiency.
- Remote ON-OFF function.
- Remote sensing function (5V only).

[SUMMARY]

The R series TDR-M/TDR-H products are 3-output power supplies with combinations of +5V and ±12V or ±15V so as to be suitable for various devices using a microcomputer. These products are available for a wide variety of devices such as an electronic exchange, a vehicle-mounted device, and uninterruptible device.
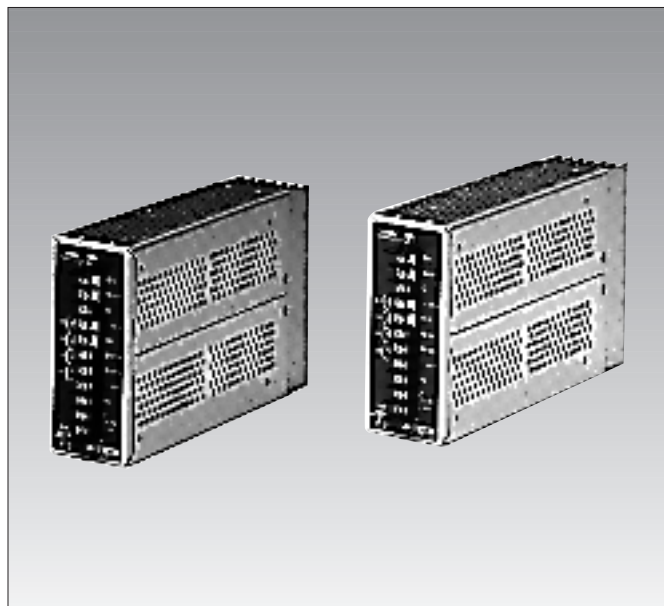
PART NUMBERS AND RATINGS

Part No.	Input voltage	Output current(A)				
		+5V	+12V	−12V	+15V	−15V
TDR-001M	20 to 30	10	1	1		
TDR-002M	20 to 30	10			1	1
TDR-001H	42 to 56	10	1	1		
TDR-002H	42 to 56	10			1	1

- :Stock products.

All specifications are subject to change without notice.

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R SERIES TDR75W TYPE

SPECIFICATIONS AND STANDARDS ⚠TDK

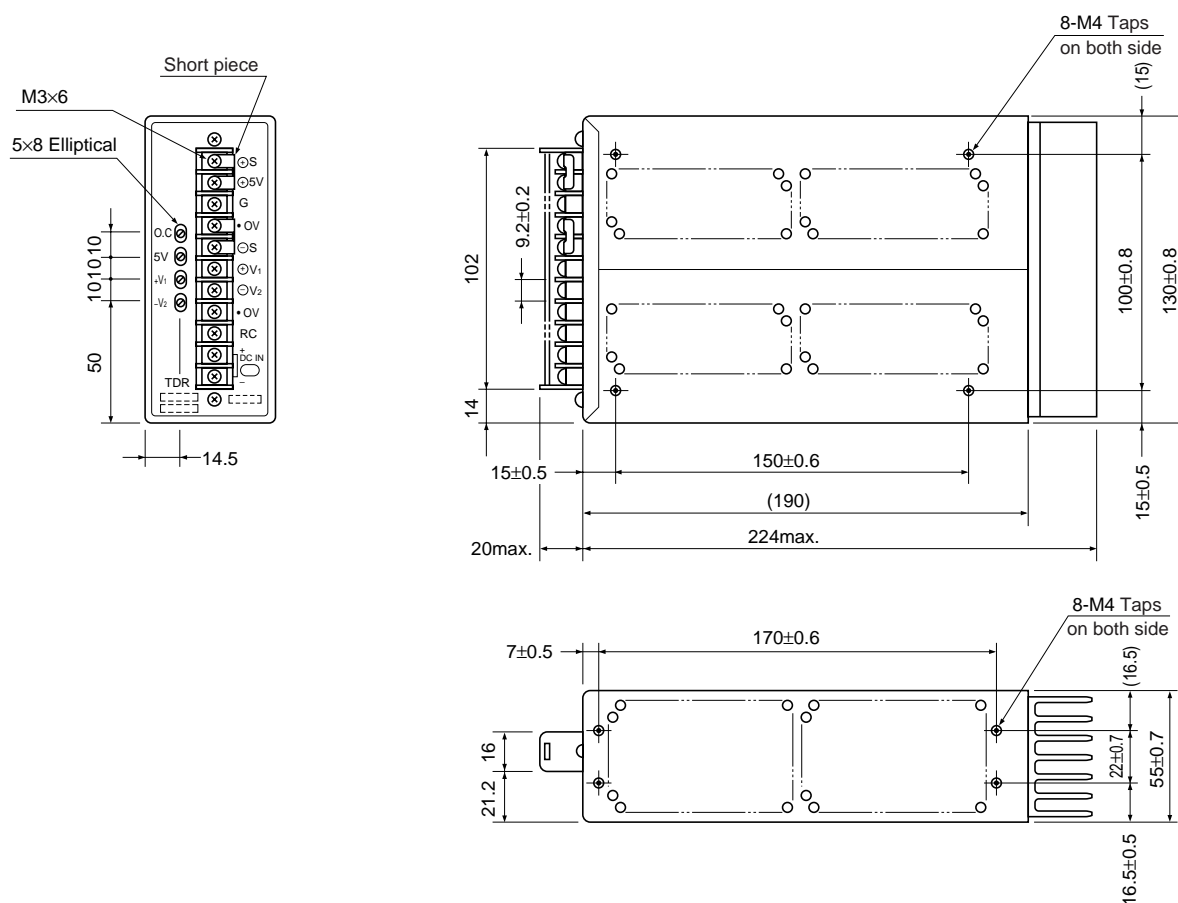| PART NO.	M TYPE:DC.24V INPUT		TDR-001M			TDR-002M		
	H TYPE:DC.48V INPUT		TDR-001H			TDR-002H		
Rated output voltage and current[*1]			+5V • 10A	+12V • 1A	−12V • 1A	+5V • 10A	+15V • 1A	−15V • 1A
INPUT CONDITIONS								
Input voltage Edc	M type: DC.24V input	V	20 to 30[Rating: 24]					
	H type: DC.48V input	V	42 to 56[Rating: 48]					
Input current	M type: DC.24V input	A	6.5max.[Fuse rating: 7A]					
	H type: DC.48V input	A	2.6max.[Fuse rating: 3A]					
Efficiency		%	74typ.[25°C, input and output ratings]					
OUTPUT CHARACTERISTICS								
Output voltage Edc		V	+5	+12	−12	+5	+15	−15
Maximum output current		A	10	1	1	10	1	1
Maximum output power		W	74					
Voltage variable range Edc		V	5V: 4 to 5.5 12V: 9.6 to 13.2 15V: 12 to 16.5					
Overvoltage threshold Edc		V	5V: 6 to 6.9 12V: 13.7 to 15.5 15V: 17 to 19					
Overcurrent threshold		A	5V: 11.4 to 13.2 ±NV: 1.08 to 1.32					
Voltage stability	Input variation	%	0.8max.(0.4typ.)[Within the input voltage range]			Total variation 2max.(1typ.)		
	Load variation	%	1max.(0.4typ.)[10 to 100% load]					
	Temperature variation	%	1.3max.(0.6typ.)[Ambient temperature: 0 to +50°C]					
	Drift	%	0.5max.[25°C, input and output ratings, after input voltage ON for 30min to 8h]					
Ripple Ep-p		mV	5V: 40max. ±NV: 50max.					
Ripple noise Ep-p		mV	Output voltage×1%+50max.					
AUXILIARY FUNCTIONS								
Overvoltage protection			Voltage shut-down type, recovers upon reset(interval approx. 20s).					
Overcurrent protection			Fixed current and voltage threshold type, automatic recovery.					
Remote ON-OFF			Yes(RC terminal and 0V terminal of ±NV are shorted and turned OFF.)					
Remote sensing			Only 5V					
CONSTRUCTIONS								
External dimensions		mm	130×55×224[H×W×L]					
Weight		kg	1.4max.					
Mounting method			Can be attached to 4 sides.					
Case material			Aluminum(Phosphoric acid anodized surface)					

[*1] Current rating(maximum output current) is determined for 0 to +50°C. Derating is required when used outside this temperature range.

TDK Switching Power Supply

R SERIES TDR75W TYPE
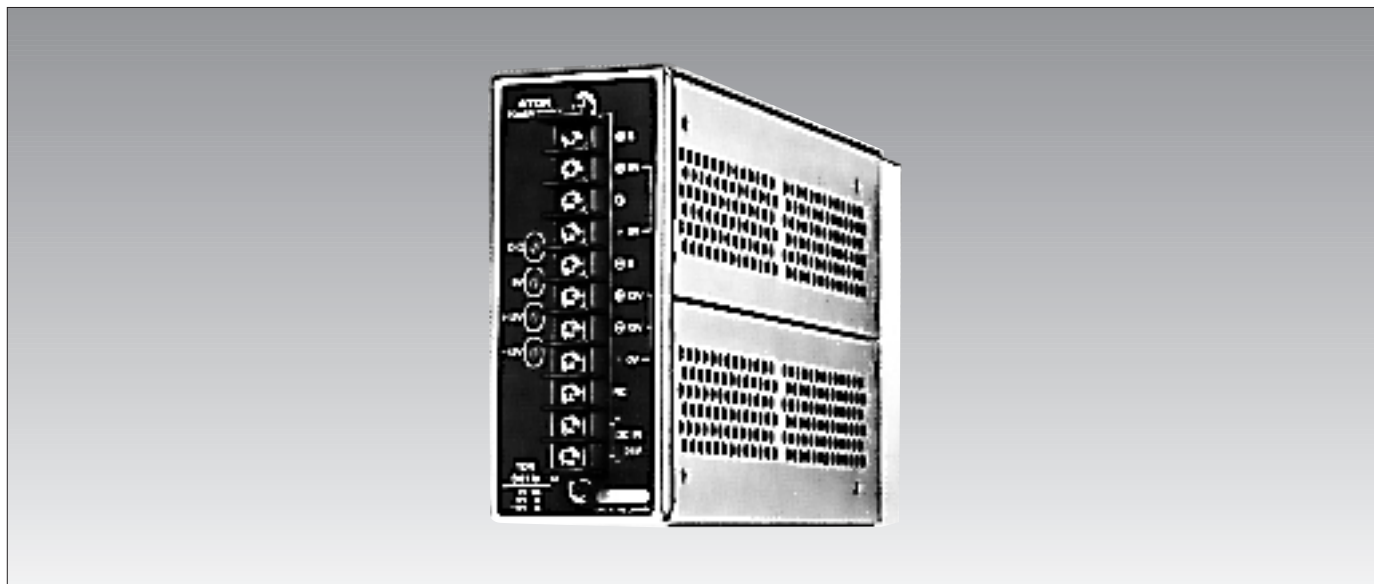
SHAPES AND DIMENSIONS
TDR75W TYPE

Dimensions in mm
±1mm : without specified dimensions

Short piece

M3×6

5×8 Elliptical

101010
50

O.C
5V
+V₁
−V₂

⊖S
⊖5V
G
• OV
⊖S
⊖V₁
⊖V₂
• OV
RC
DC IN
TDR

14.5

8-M4 Taps
on both side
(15)

9.2±0.2
102
14

100±0.8
130±0.8

15±0.5
150±0.6
(190)
224max.
20max.
15±0.5

8-M4 Taps
on both side
(16.5)

7±0.5
170±0.6

16
21.2

22±0.7
55±0.7

16.5±0.5

Note)
• Do not insert M4 tap installation screws more than 7mm from surface of power supply.

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Characteristics, Functions, and Applications

BLOCK DIAGRAM
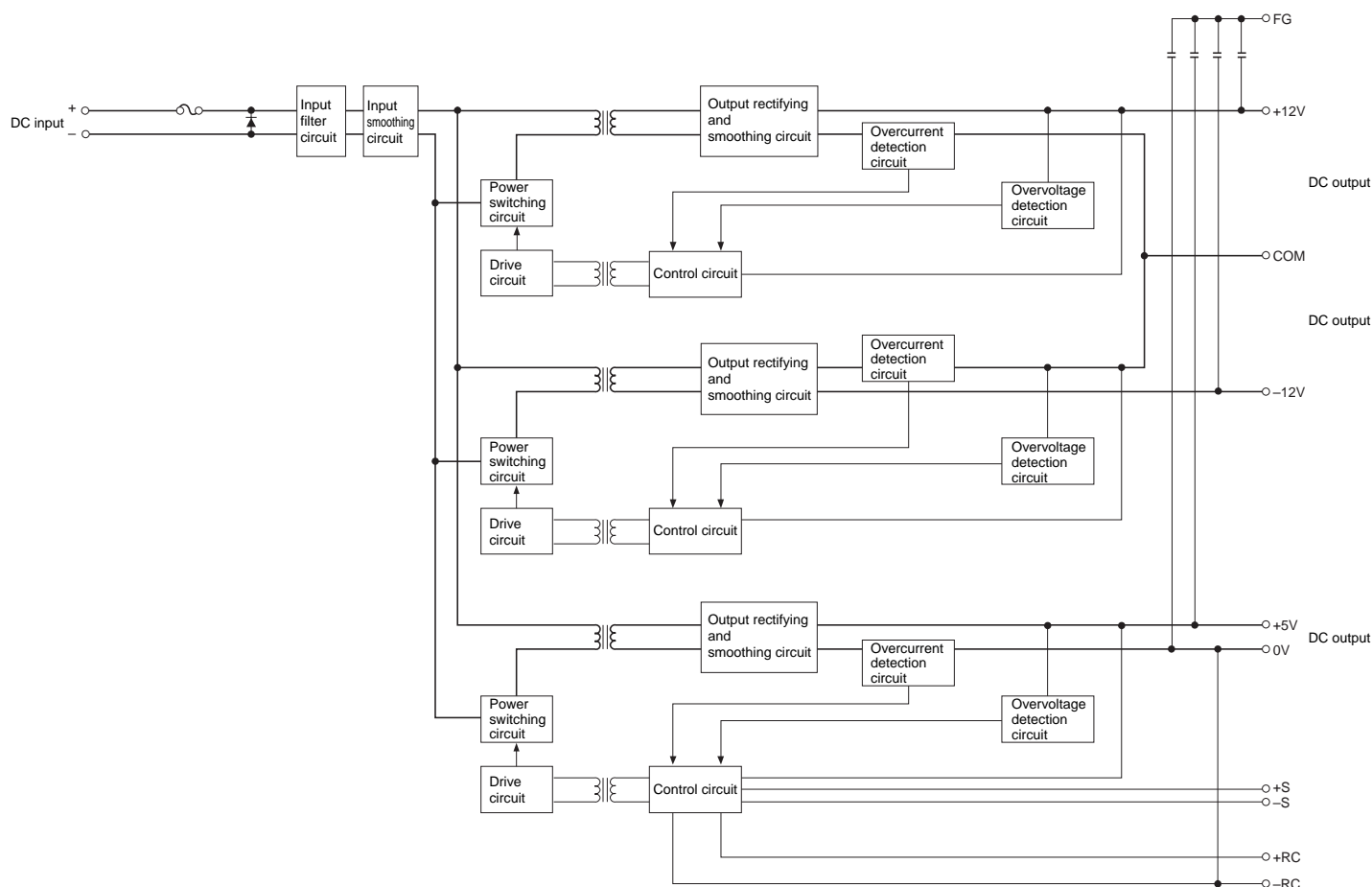
TERMINAL DESIGNATIONS AND FUNCTIONS
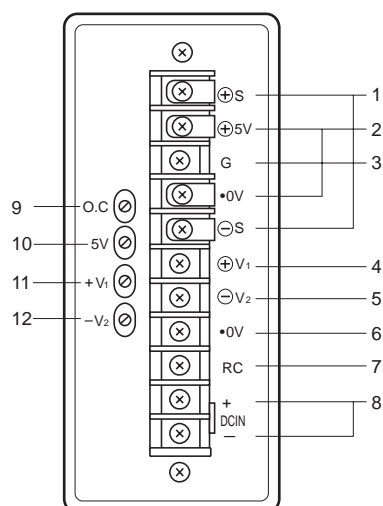
1 Remote sensing terminals(+S, −S)
These terminals are used to compensate voltage loss from the output terminal to a load. Normally they are shorted with a metal bar.

2 +5V DC output terminals(+5V, 0V)
Connect to load.

3 Frame ground terminal(G)
Connect to earth ground. This is connected to the case.

4 +NV DC output terminal(+V_1)
Connect to load.

5 −NV DC output terminal(−V_2)
Connect to load.

6 Ground terminal(0V)
Ground terminal for +NV and −NV.

7 Remote ON-OFF terminals(+RC, −RC)
The output can be turned on or off by an open or close control between the RC terminal and the ground terminal 6 (when open, output is on).

8 DC input terminals(DC INPUT, +, −)
Connected to DC input line.

9 +5V overcurrent value adjustment trimmer(OC)
Capable of adjusting a setting value of the +5V output overcurrent.

10 +5V output voltage adjustment trim(5V)
+5V adjusts output voltage.

11 +NV output voltage adjustment trim(+V_1)
+NV adjusts output voltage.

12 −NV output voltage adjustment trim(−V_2)
−NV adjusts output voltage.

Characteristics, Functions, and Applications

COMMON SPECIFICATIONS

Temperature and humidity

|		
Temperature range	Operating(°C)	0 to +60 Derating is necessary when operating environment temperature exceed 50°C.
	Storage(°C)	−25 to +75
Humidity range	Operating(%)RH	20 to 95[Maximum wet-bulb temperature: 35°C, without dewing]
	Storage(%)RH	

Amplitude and vibration

Amplitude	5 to 10Hz	All amplitude 10mm[3 directions, each 1h]
	10 to 55Hz	Acceleration 19.6m/s^2 [2G, 3 directions, each 1h]
Vibration	Acceleration	196m/s^2 [20G, 3 directions, each 3 times]
	Vibration time	11±5ms

Withstand voltage and insulation resistance

|		
Withstand voltage	Input terminal to case(G)	Eac(kV)1.5, 1min[Normal temperature, normal humidity, cutout current 10mA]
	Input terminal to output terminal	
Insulation resistance	Input terminal to case(G)	Edc(V)500, 100MΩ min. [Normal temperature, normal humidity]
	Input terminal to output terminal	
	Output terminal to case(G)	

OUTPUT POWER-AMBIENT TEMPERATURE(DERATINGS)
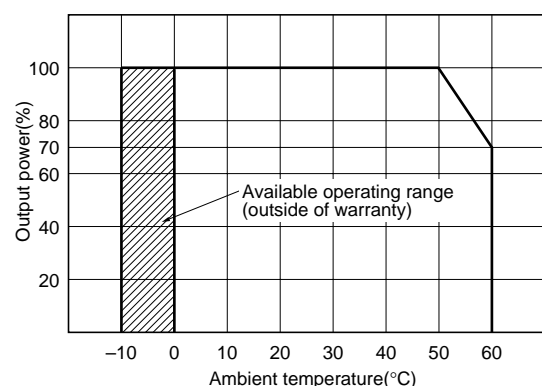
SURGE CURRENT, START UP TIME AND HOLD UP TIME

Example: TDR-001H
Input voltage: DC.48V   Load: 100%(5V10A, ±12V1A)   Temperature: 25°C
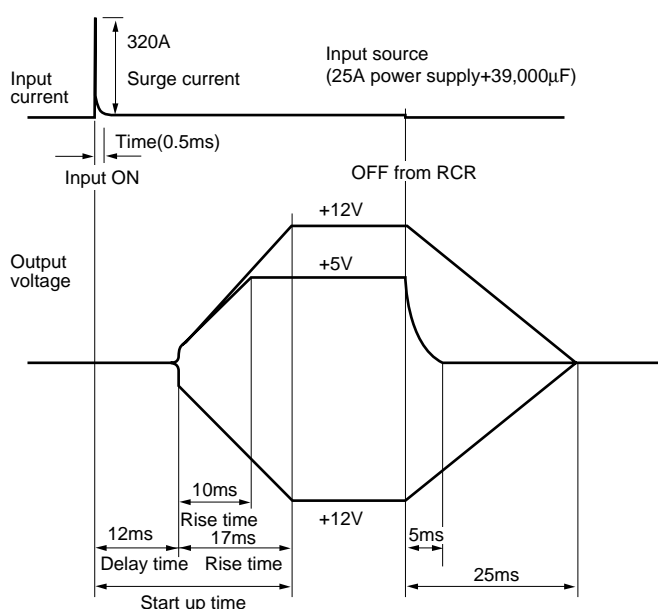
The input surge current is to be charged to a capacitor of an input smoothing circuit. This type of power supply is not provided with any special circuit for protection from surge current since surge current continues only for a short time in case of its occurrence. The magnitude of surge current depends upon a capacity (internal resistance) of the power supply for an input to this power supply and therefore an input source having a sufficiently large capacity is used at measurement. In a practical use, the surge current is lower than the value shown in the specifications.

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Characteristics, Functions, and Applications

INPUT CURRENT

Example: TDR-002H

No load
Input current
48V: 66mA
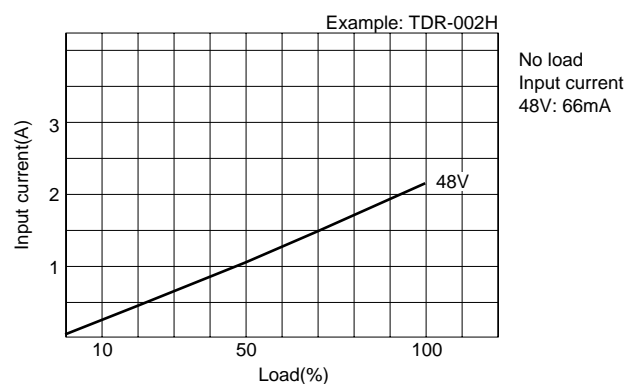
REMOTE ON-OFF

Power supply output voltage can be turned on/off by this terminal for a power supply sequence or the like.

- Between +RC and –RC: Turned on upon setting to high level (2.4 to 24V) or being open.
- Between +RC and –RC: Turned off upon setting to low level (0 to 0.4V) or shorted.

The –RC terminal has the same level as 0V of an output of the DC output terminal.

Keep the +RC terminal open when not in use since it is internally pulled up.

(Remote ON-OFF circuit)
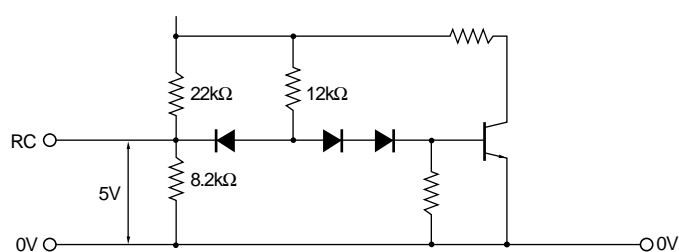
OTHERS

1. Unless conditions are otherwise specified in the specifications or standards, 25°C and rated input-output should be applied.
2. Ripple and noise (50MHz max.) were determined for 0 to +50°C temperature range and 10 to 100% load.