

# MTM Series

PCB mount ultra compact, regulated, high voltage DC-DC converter, flat mounting



94 standard products

- Reference: see chart for complete reference
- 3 output voltage ranges (Vout): 0 to 600V or 1kV or 1.25kV or 1.5kV
- Pout: 0.5W, 0.8W and 1W
- 3 input voltage ranges (Vin): 12Vdc  $\pm$ 0.5Vdc or 15Vdc  $\pm$ 0.5Vdc or 24Vdc  $\pm$ 1Vdc
- Pout: 0.5W, 0.8W and 1W



## General Description

The MTM Series is the ideal solution for PMTs and other devices that need a bias voltage ranging from 0 to 1500V, with very small current.

Low cost	Tight line / load regulation	Arc and continuous short circuit protection
Miniature and lightweight	Voltage monitoring	Self restoring output voltage
Flat PCB mounting	Low ripple (<0,003% p. to p.)	Option: flying wire for HV output

Parameters	Specifications
Input voltage Vin (pins 1 & 2)	12Vdc $\pm$ 0.5Vdc or 15Vdc $\pm$ 0.5Vdc or 24Vdc $\pm$ 1Vdc, according to type
Input current	At no load: 15mA At full load: from 65mA to 100mA
HV output Vout (pin 7 or lead - optional)	Programmable nominal voltage, refer to the Selection Guide for voltage ranges
Polarity	Fixed positive or negative
HV setting (pins 3, 4 & 5))	Via external potentiometer, minimum resistance 10k $\Omega$ or • Option 1: via external voltage source 0/ 5V $\pm$ 0.5% at full scale, and input impedance >1M $\Omega$ • Option 2: via external voltage source 0/10V $\pm$ 0.5% at full scale, and input impedance >1M $\Omega$
Max. output current Iout	Refer to the Selection Guide
Load voltage regulation	$\pm$ 0,01% of full output voltage ffor no load to full load
Line voltage regulation	$\pm$ 0,01% of full output voltage over specified input voltage range
Residual ripple	Between 10mV and 40mV peak-to-peak at full load
Temperature coefficient	100ppm/ $^{\circ}$ C for the maximum output voltage after starting and over temperature range 0 to 50 $^{\circ}$ C
Output HV monitoring (pin 6)	+1V/1kV max. or -1V/-1kV max. according to model polarity output impedance = 200k $\Omega$ $\pm$ 1%

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Parameters	Specifications
Output reference voltage (pin 5)	<ul style="list-style-type: none"><li>• Option 1: <math>5V \pm 0.5\%</math>, TC:50ppm/°C, max. output current:1mA</li><li>• Option 2: <math>10V \pm 0.5\%</math>, TC:50ppm/°C, max. output current:1mA</li></ul>
Operating temperature	- 40°C to + 50°C
Storage temperature	- 40°C to + 70°C
Safeguards	<ul style="list-style-type: none"><li>• Arc and short circuit protection</li><li>• Protected against reverse <math>V_{in}</math></li></ul>
Options	<ul style="list-style-type: none"><li>• Flying wire for HV output instead of pin 7</li><li>• Suitable for use with an external potentiometer</li></ul>

Package Configuration	
Case material	Tin steel plate Thickness 0.5 mm
Case dimensions LxHxW	47.0 x 28.0 x 12.5 mm
Pins	Through 0.46 round pins, length 3 mm, spacing: 2.54 mm, option: flying wire for HV output
PCB mounting (raised mounting models only)	Through 4 mounting tabs length: 5 mm, width: 1,5 mm, thickness : 0,5 mm
Weight	35g
Insulation	Fully potted in an epoxy resin

Pin Connections	
Line input	1. $V_{in}$ 2. 0V supply
HV setting	3. 0V signal 4. Control input 5. Output reference
HV monitoring	6. Voltage monitoring
HV output	7. $V_{out}$

## Main Applications

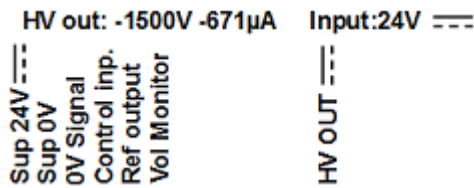
- Photomultipliers Tubes (PM)
- Avalanche Photo Diodes (APD)
- Photodiodes (PD)



# MTM Series


PCB mount ultra compact, regulated, high voltage DC-DC converter, flat mounting

## Marking

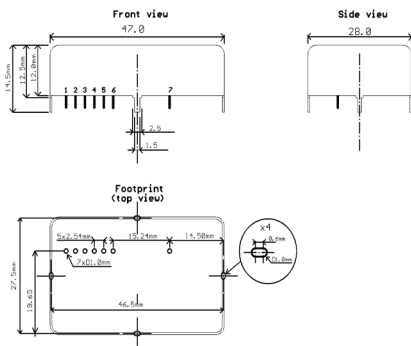


53, rue Bourdignon - F 94100 Saint Maur  
 Tel : 33 (0)1 84 23 11 10  
<http://www.sdshv.com>

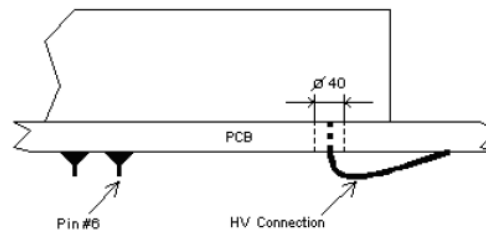
**sds**  
 RoHS  
 Compliant  
 Product

MODEL : MTM24N1-5-C5  
 Serial number :20191129  
 Made in France 

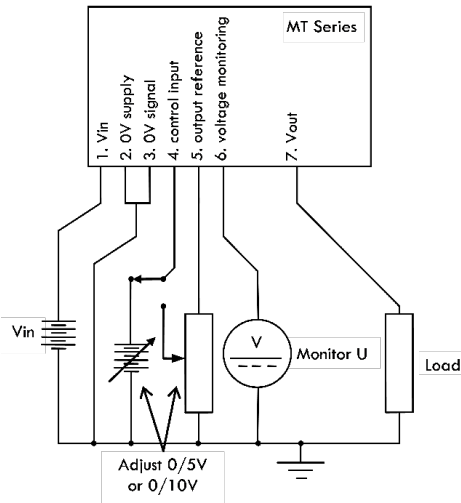
## Mechanical Dimensions (flat mounting)



## Option: flying wire for HV output



## Functional diagram



## MTM Series overview

		Vin (Vdc)		
		12	15	24
Vout (Vdc)	600	(0.5W) MTM12x0.6-0.5-C	(0.8W) MTM15x0.6-0.8-C	(1W) MTM24x0.6-1-C
	1000	(0.5W) MTM12x1-0.5-C	(0.8W) MTM15x1-0.8-C	(1W) MTM24x1-1-C
	1250	(0.5W) MTM12x1.25-0.5-C	(0.8W) MTM15x1.25-0.5-C	(1W) MTM24x1.25-1-C
	1500	(0.5W) MTM12x1.5-0.5-C	(0.8W) MTM15x1.5-0.8-C	(1W) MTM24x1.5-1-C

\* Other output voltages and currents are available upon request.



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## Ordering information

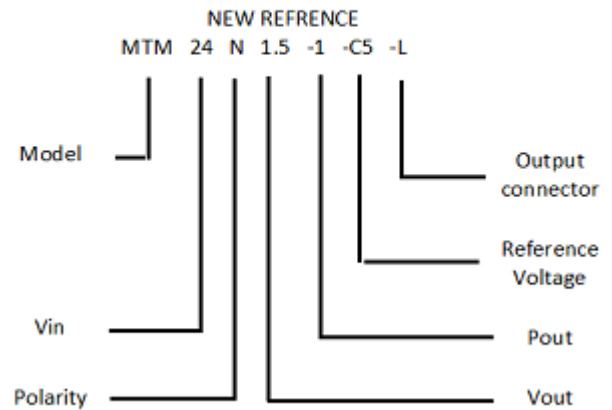
Model	Name of the series	MTM
Vin	12Vdc nominal	12
	15Vdc nominal	15
	24Vdc nominal	24
Polarity	Positive output voltage	P
	Negative output voltage	N
Vout	Output voltage	See ordering code
Pout	Output power in Watt	See ordering code
Control	05Vdc	C5
	10Vdc	C10
Case	Flat mounting	MTM Series
Option	Fying wire to collect the HV output	L

### Output voltage and power code

The power supply units have a 6-element order code

- The first 3 letters refer to the series
- The first 2 digits indicate the value of the input voltage
- The following letter indicates the polarity
- the following number indicates the output voltage in kV
- The last digit indicate the power in Watt
- The last digit preceded by the the letter «C» refers to the output HV monitoring

Example MTM Series  
Former reference: MT 24N152671-C5F



### Ordering example

- The ordering code of a -1500V@1W psu under 24Vdc, with 0/5V analog command for setting, and with the optional flying wire for the HV output is : MTM24N1.5-1-C5-L



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## MTM Series selection guide

Vout	Iout/Pout	Vin	Polarity	Control	former reference	NEW REFERENCE	
1500V	0.67mA/1.0W	24V	+	0/10V	MT24P152671-C10-F*	MTM24P1.5--1-C10-*	
				0/5V	MT24P152671-C5-F*	MTM24P1.5-1-C5-*	
			-	0/10V	MT24N152671-C10-F*	MTM24N1.5-1-C10-*	
				0/5V	MT24N152671-C5-F*	MTM24N1.5-1-C5-*	
	0.53mA/0.8W	15V	+	0/10V	MT15P152531-C10-F*	MTM15P1.5-0.8-C10-*	
				0/5V	MT15P152531-C5-F*	MTM15P1.5-0.8-C5-*	
			-	0/10V	MT15N152531-C10-F*	MTM15N1.5-0.8-C10-*	
				0/5V	MT15N152531-C5-F*	MTM15N1.5-0.8-C5-*	
	0.33mA/0.5W	12V	+	0/5V	MT12P152331-C5-F*	MTM12P1.5-0.5-C5-*	
			-	0/5V	MT12P152331-C5-F*	MTM12P1.5-0.5-C5-*	
	1250V	0.80mA/1.0W	24V	+	0/10V	MT24P122801-C10-F*	MTM24P1.25-1-C10-*
					0/5V	MT24P122801-C5-F*	MTM24P1.25-1-C5-*
-				0/10V	MT24N122801-C10-F*	MTM24N1.25-1-C10-*	
				0/5V	MT24N122801-C5-F*	MTM24N1.25-1-C5-*	
0.64mA/0.8W		15V	+	0/10V	MT15P122641-C10-F*	MTM15P1.25-0.8-C10-*	
				0/5V	MT15P122641-C5-F*	MTM15P1.25-0.8-C5-*	
			-	0/10V	MT15N122641-C10-F*	MTM15N1.25-0.8-C10-*	
				0/5V	MT15N122641-C5-F*	MTM15N1.25-0.8-C5-*	
0.40mA/0.5W		12V	+	0/5V	MT12P122401-C5-F*	MTM12P1.25-0.5-C5-*	
			-	0/5V	MT12N122401-C5-F*	MTM12N1.25-0.5-C5-*	
1000V		1.00mA/1.0W	24V	+	0/10V	MT24P102102-C10-F*	MTM24P1-1-C10-*
					0/5V	MT24P102102-C5-F*	MTM24P1-1-C5-*
	-			0/10V	MT24N102102-C10-F*	MTM24N1-1-C10-*	
				0/5V	MT24N102102-C5-F*	MTM24N1-1-C5-*	
	0.80mA/0.8W	15V	+	0/10V	MT15P102801-C10-F*	MTM15P1-0.8-C10-*	
				0/5V	MT15P102801-C5-F*	MTM15P1-0.8-C5-*	
			-	0/10V	MT15N102801-C10-F*	MTM15N1-0.8-C10-*	
				0/5V	MT15N102801-C5-F*	MTM15N1-0.8-C5-*	
	0.50mA/0.5W	12V	+	0/5V	MT12P102501-C5-F*	MTM12P1-0.5-C5-*	
			-	0/5V	MT12N102501-C5-F*	MTM12N1-0.5-C5-*	
	600V	1.67mA/1.0W	24V	+	0/10V	MT24P601172-C10-F*	MTM24P0.6-1-C10-*
					0/5V	MT24P601172-C5-F*	MTM24P0.6-1-C5-*
-				0/10V	MT24N601172-C10-F*	MTM24N0.6-1-C10-*	
				0/5V	MT24N601172-C5-F*	MTM24N0.6-1-C5-*	
1.33mA / 0.8W		15V	+	0/10V	MT15P601132-C10-F*	MTM15P0.6-0.8-C10-*	
				0/5V	MT15P601132-C5-F*	MTM15P0.6-0.8-C5-*	
			-	0/10V	MT15N601132-C10-F*	MTM15N0.6-0.8-C10-*	
				0/5V	MT15N601132-C5-F*	MTM15N0.6-0.8-C5-*	
0.83mA/0.5W		12V	+	0/5V	MT12P601831-C5-F*	MTM12P0.6-0.5-C5-*	
			-	0/5V	MT12N601831-C5-F*	MTM12N0.6-0.5-C5-*	

\* Specify at the end of the ordering code «L» for a lead for the HV output