

#### Features

- Ultra wide 4 : 1 Input Range
- High Power Density
- Indefinite Short-Circuit Protection
- I/O-Isolation 1500 VDC
- Input Filter meets EN 55022, Class A and FCC, Level A without external Components
- Remote on/off
- Adjustable Output
- Industry Standard Pinout
- Shielded Metal Case with insulated Baseplate
- 3 Year Product Warranty



The TEN 20WI is a new high efficiency isolated 20 Watt converter series with industry standard footprint. They feature a very wide input voltage ranges of 9 – 36 VDC and 18 – 75 VDC. Overload and overvoltage protection as well as remote of/off are included as standard. Built-in filters for both input and output minimizes the need of external filtering. The TEN 20WI series is targeted specially at mobile systems, telecommunication, industrial and distributed power applications where a 4:1 input voltage range is required.

#### Models

Ordercode	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TEN 20-2411WI	9 – 36 VDC	5 VDC	4'000 mA	78 %
TEN 20-2412WI		12 VDC	1'670 mA	80 %
TEN 20-2413WI		15 VDC	1'330 mA	80 %
TEN 20-2421WI		± 5 VDC	± 2'000 mA	79 %
TEN 20-2422WI		± 12 VDC	± 835 mA	81 %
TEN 20-2423WI		± 15 VDC	± 665 mA	82 %
TEN 20-4811WI	18 – 75 VDC	5 VDC	4'000 mA	80 %
TEN 20-4812WI		12 VDC	1'670 mA	81 %
TEN 20-4813WI		15 VDC	1'330 mA	81 %
TEN 20-4821WI		± 5 VDC	± 2'000 mA	79 %
TEN 20-4822WI		± 12 VDC	± 835 mA	83 %
TEN 20-4823WI		± 15 VDC	± 665 mA	84 %

### Input Specifications

Input current no load /full load	12 Vin models:	40 mA typ.
	24 Vin models:	35 mA typ.
	48 Vin models:	25 mA typ.
Input current (full load)	24 Vin models:	1000 mA typ.
	48 Vin models:	500 mA typ.
Surge voltage (100 msec. max.)	24 Vin models:	50 V max..
	48 Vin models:	100 V max.
Conducted noise (input)	EN 55022 level A, FCC part 15, level A	

### Output Specifications

Voltage set accuracy	± 2 %	
Output voltage adjustment	± 10 %	
Regulation	– Input variation Vin min. to Vin max.	± 0.5 % max.
	– Load variation 10 – 100 %	
	– single output models	± 0.5 % max.
	– dual output models balanced load	± 3 % max.
	– dual output models unbalanced load	± 5 % max.
Ripple and noise (20 MHz Bandwidth)	single output models:	75 mVpk-pk max.
	dual output models:	100 mVpk-pk max.
Temperature coefficient	± 0.02 % / °C	
Output current limitation	105% – 145% of Iout max., foldback	
Short circuit protection	indefinite (automatic recovery)	
Over voltage protection	5 Vout models:	6.2 V
	12 Vout models:	15 V
	15 Vout models:	18 V
Capacitive load	5 Vout models / ± 5 Vout models:	6'800 µF max. / ± 3'400 µF max.
	12 Vout models / ±12 Vout models:	2'200 µF max. / ± 680 µF max.
	15 Vout models / ±15 Vout models:	755 µF max. / ± 450 µF max.

### General Specifications

Temperature ranges	– Operating	– 40 °C ... + 71 °C
	– Case temperature	+ 100 °C max.
	– Storage	– 55 °C ... + 105 °C
Derating	2.5 %/K above 60°C	
Humidity (non condensing)	95 % rel H max.	
Reliability, calculated MTBF (MIL-HDBK-217 E)	> 440'000 h @ + 25°C	
Isolation voltage	– Input/Output	1'500 VDC
Isolation capacity	– Input/Output	300 pF max.
Isolation resistance	– Input/Output (500 VDC)	> 1'000 M Ohm
Switching frequency (fixed)	300 kHz typ. (Pulse width modulation PWM)	
Remote on/off	ON:	3.5 ... 12 VDC or open circuit.
	OFF:	0 ... 1.2 VDC or short circuit pin 3 and pin 2
	OFF idle current:	16 mA typ.

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

**General Specifications**

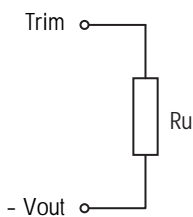
Safety standards	UL 1950, EN 60950, IEC 60950 Compliance up to 60 VDC input voltage (SELV limit)
Safety approvals	UL /cUL File E 188913

**Physical Specifications**

Case material	copper nickel plated
Baseplate	plastik none conductive
Potting material	epoxy (UL 94V-0 – rated)
Weight	50 g (1.2 oz)
Soldering temperature	max. 250 °C / 10 sec.

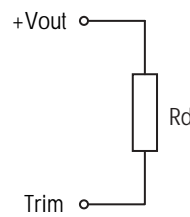
**Output Voltage Adjustment**

Trim up



		<b>Ru [kohm]*</b>		
output		5V	12V	15V
+5%		3.9	56	470
+10%		0.47	6.8	2.2
output		±5V	±12V	±15V
+5%		10	22	39
+10%		0.82	1.5	6.8

Trim down

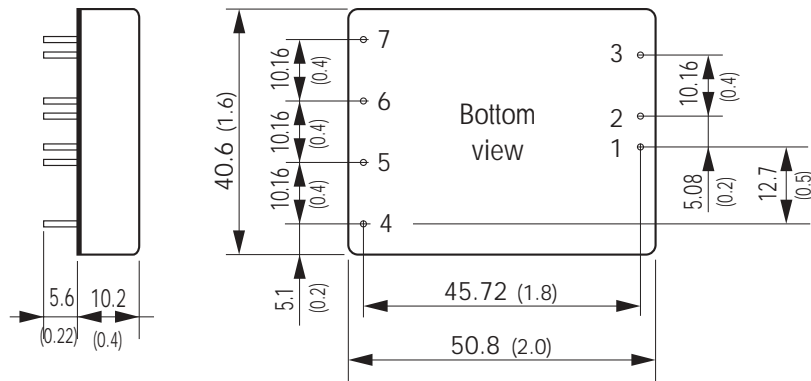


		<b>Rd [kohm]*</b>		
output		5V	12V	15V
-5%		5.6	47	56
-10%		0.68	2.7	1.8
output		±5V	±12V	±15V
-5%		15	47	47
-10%		1.2	10	8.2

\* approximate values

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

**Outline Dimensions mm (inches)**



Pin diameter  $\varnothing 1.0 \pm 0.05$  (0.039  $\pm 0.002$ )

Pin-Out		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	-Vin (GND)	-Vin (GND)
3	Remote on/off	Remote on/off
4	No pin	+Vout
5	+Vout	Common
6	-Vout	-Vout
7	Trim	Trim

Specifications can be changed without notice