

### Features

- ◆ Plug-in modules for 19"-subracks (3U and 6U height)
- ◆ Available DC-input voltage ranges 18–36, 36–75, 80–160 and 160–320VDC
- ◆ Also models with AC-input (see page 6)
- ◆ Standard output voltages: 5–250VDC up to 200A
- ◆ EMI compliance with EN 55022 class A
- ◆ Safety compliance to IEC/EN 60950
- ◆ Many options available, i.e. powerfail signals, ext. On/Off, redundant operation, wall mounting
- ◆ Customized version available on request
- ◆ 3-year product warranty



3U Models

The TSC series is a range high quality DC/DC converter qualified for demanding applications in industrial automation and telecom systems. The modular design allows very high flexibility of input/output configuration and application specific options at very reasonable cost even for low quantities. All models are constructed as rugged plug-in module for 19"-subrack (Euro cassette) with wall mounting as option.



6U Models

<b>Models</b>					
<b>3U Height Modules</b>		<b>6U Height Modules</b>			
<b>Order Code</b>	<b>Output current max.</b>	<b>Order Code</b>	<b>Output current max.</b>	<b>Output voltage (adjust.range)</b>	<b>Input voltage range</b>
* TSC 2020	8 A	TSC 1220	25 A	5 VDC (4.5 – 5.5 VDC)	18 – 36 VDC
* TSC 3020	20 A	TSC 1320	45 A		
* TSC 5020	30 A	TSC 1520	60 A		
* TSC 0620	50 A	TSC 3520	95 A		
* TSC 6020	70 A	TSC 3720	135 A		
TSC 2620	85 A	TSC 3620	190 A		
TSC 2022	4 A	TSC 1222	12.5 A	12 VDC (11 – 13 VDC)	
TSC 3022	12 A	TSC 1322	25 A		
TSC 5022	16 A	TSC 1522	33 A		
TSC 0622	24 A	TSC 3522	50 A		
TSC 6022	35 A	TSC 3722	70 A		
TSC 2622	50 A	TSC 3622	100 A		
TSC 2024	2.4 A	TSC 1224	6 A	24 VDC (23 – 26 VDC)	
TSC 3024	6 A	TSC 1324	13 A		
TSC 5024	8 A	TSC 1524	18 A		
TSC 0624	12 A	TSC 3524	27 A		
TSC 6024	18 A	TSC 3724	40 A		
TSC 2624	25 A	TSC 3624	55 A		
		TSC 3824	75 A		
TSC 2029	1 A	TSC 1229	3 A	48 VDC (45 – 55 VDC)	
TSC 3029	2.7 A	TSC 1329	6 A		
TSC 5029	4 A	TSC 1529	8 A		
TSC 0629	6 A	TSC 3529	12 A		
TSC 6029	9 A	TSC 3729	19 A		
TSC 2629	12 A	TSC 3629	26 A		
		TSC 3829	38 A		
TSC 2027	0.5 A	TSC 1227	1.2 A	110 VDC (100 – 130 VDC)	
TSC 3027	1.2 A	TSC 1327	2.5 A		
TSC 5027	1.8 A	TSC 1527	3.3 A		
TSC 0627	2.5 A	TSC 3527	5.3 A		
TSC 6027	3.5 A	TSC 3727	8 A		
TSC 2627	5 A	TSC 3627	11 A		
		TSC 3827	15 A		
TSC 2028	0.25 A	TSC 1228	0.6 A	220 VDC (200 – 250 VDC)	
TSC 3028	0.6 A	TSC 1328	1.25 A		
TSC 5028	0.9 A	TSC 1528	1.6 A		
TSC 0628	1.25 A	TSC 3528	2.8 A		
TSC 6028	1.8 A	TSC 3728	4 A		
TSC 2628	2.5 A	TSC 3628	5.5 A		
		TSC 3828	8 A		

Height: 1U = 44.45 mm (1.75)

Other output voltages on request

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

<b>Models</b>					
<b>3U Height Modules</b>		<b>6U Height Modules</b>			
<b>Order Code</b>	<b>Output current max.</b>	<b>Order Code</b>	<b>Output current max.</b>	<b>Output voltage (adjust.range)</b>	<b>Input voltage range</b>
TSC 2030	8 A	TSC 1230	30 A	5 VDC (4.5 – 5.5 VDC)	36 – 75 VDC
TSC 3030	20 A	TSC 1330	50 A		
TSC 5030	35 A	TSC 1530	80 A		
TSC 0630	50 A	TSC 3530	100 A		
TSC 6030	80 A	TSC 3730	150 A		
TSC 2630	100 A	TSC 3630*	200 A		
TSC 2032	4 A	TSC 1232	15 A	12 VDC (11 – 13 VDC)	
TSC 3032	12 A	TSC 1332	30 A		
TSC 5032	20 A	TSC 1532	42 A		
TSC 0632	26 A	TSC 3532	56 A		
TSC 6032	40 A	TSC 3732	85 A		
TSC 2632	60 A	TSC 3632	115 A		
TSC 2034	2.4 A	TSC 1234	7.5 A	24 VDC (23 – 26 VDC)	
TSC 3034	6 A	TSC 1334	15 A		
TSC 5034	10 A	TSC 1534	23 A		
TSC 0634	14 A	TSC 3534	30 A		
TSC 6034	20 A	TSC 3734	50 A		
TSC 2634	30 A	TSC 3634	65 A		
		TSC 3834	100 A		
TSC 2039	1 A	TSC 1239	3.6 A	48 VDC (45 – 55 VDC)	
TSC 3039	2.7 A	TSC 1339	7.3 A		
TSC 5039	4.5 A	TSC 1539	11 A		
TSC 0639	6.5 A	TSC 3539	14 A		
TSC 6039	9 A	TSC 3739	23 A		
TSC 2639	15 A	TSC 3639	30 A		
		TSC 3839	45 A		
TSC 2037	0.5 A	TSC 1237	1.5 A	110 VDC (100 – 130 VDC)	
TSC 3037	1.2 A	TSC 1337	3 A		
TSC 5037	2 A	TSC 1537	4.5 A		
TSC 0637	3 A	TSC 3537	6.5 A		
TSC 6037	4 A	TSC 3737	10 A		
TSC 2637	6.5 A	TSC 3637	14 A		
		TSC 3837	20 A		
TSC 2038	0.25 A	TSC 1238	0.8 A	220 VDC (200 – 250 VDC)	
TSC 3038	0.6 A	TSC 1338	1.5 A		
TSC 5038	1 A	TSC 1538	2.4 A		
TSC 0638	1.5 A	TSC 3538	3.5 A		
TSC 6038	2 A	TSC 3738	5 A		
TSC 2638	3.2 A	TSC 3638	7 A		
		TSC 3838	10 A		

\*Wall mounting version

Height: 1U = 44.45 mm (1.75)

Other output voltages on request

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

<b>Models</b>					
<b>3U Height Modules</b>		<b>6U Height Modules</b>			
<b>Order Code</b>	<b>Output current max.</b>	<b>Order Code</b>	<b>Output current max.</b>	<b>Output voltage (adjust.range)</b>	<b>Input voltage range</b>
TSC 2050	8 A	TSC 1250	30 A	5 VDC (4.5 – 5.5 VDC)	80 – 160 VDC
TSC 3050	20 A	TSC 1350	50 A		
TSC 5050	35 A	TSC 1550	80 A		
TSC 0650	50 A	TSC 3550	110 A		
TSC 6050	80 A	TSC 3750	165 A		
TSC 2650	100 A	TSC 3650	220 A		
TSC 2052	4 A	TSC 1252	15 A	12 VDC (11 – 13 VDC)	
TSC 3052	12 A	TSC 1352	30 A		
TSC 5052	20 A	TSC 1552	42 A		
TSC 0652	26 A	TSC 3552	56 A		
TSC 6052	40 A	TSC 3752	85 A		
TSC 2652	60 A	TSC 3652	115 A		
TSC 2054	2.4 A	TSC 1254	7.5 A	24 VDC (23 – 26 VDC)	
TSC 3054	6 A	TSC 1354	15 A		
TSC 5054	10 A	TSC 1554	23 A		
TSC 0654	14 A	TSC 3554	30 A		
TSC 6054	20 A	TSC 3754	50 A		
TSC 2654	30 A	TSC 3654	65 A		
		TSC 3854	100 A		
TSC 2059	1 A	TSC 1259	3.6 A	48 VDC (45 – 55 VDC)	
TSC 3059	2.7 A	TSC 1359	7.3 A		
TSC 5059	4.5 A	TSC 1559	11 A		
TSC 0659	6.5 A	TSC 3559	14 A		
TSC 6059	9 A	TSC 3759	23 A		
TSC 2659	15 A	TSC 3659	30 A		
		TSC 3859	45 A		
TSC 2057	0.5 A	TSC 1257	1.5 A	110 VDC (100 – 130 VDC)	
TSC 3057	1.2 A	TSC 1357	3 A		
TSC 5057	2 A	TSC 1557	4.5 A		
TSC 0657	3 A	TSC 3557	6.5 A		
TSC 6057	4 A	TSC 3757	10 A		
TSC 2657	6.5 A	TSC 3657	14 A		
		TSC 3857	20 A		
TSC 2058	0.25 A	TSC 1258	0.8 A	220 VDC (200 – 250 VDC)	
TSC 3058	0.6 A	TSC 1358	1.5 A		
TSC 5058	1 A	TSC 1558	2.4 A		
TSC 0658	1.5 A	TSC 3558	3.5 A		
TSC 6058	2 A	TSC 3758	5 A		
TSC 2658	3.2 A	TSC 3658	7 A		
		TSC 3858	10 A		

Height: 1U = 44.45 mm (1.75)

Other output voltages on request

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

<b>Models</b>					
<b>3U Height Modules</b>		<b>6U Height Modules</b>			
<b>Order Code</b>	<b>Output current max.</b>	<b>Order Code</b>	<b>Output current max.</b>	<b>Output voltage (adjust.range)</b>	<b>Input voltage range</b>
TSC 2070	8 A	TSC 1270	30 A	5 VDC (4.5 – 5.5 VDC)	160 – 320 VDC
TSC 3070	20 A	TSC 1370	50 A		
TSC 5070	35 A	TSC 1570	80 A		
TSC 0670	50 A	TSC 3570	110 A		
TSC 6070	80 A	TSC 3770	165 A		
TSC 2670	100 A	TSC 3670	220 A		
TSC 2072	4 A	TSC 1272	15 A	12 VDC (11 – 13 VDC)	
TSC 3072	12 A	TSC 1372	30 A		
TSC 5072	20 A	TSC 1572	42 A		
TSC 0672	26 A	TSC 3572	56 A		
TSC 6072	40 A	TSC 3772	85 A		
TSC 2672	60 A	TSC 3672	115 A		
TSC 2074	2.4 A	TSC 1274	7.5 A	24 VDC (23 – 26 VDC)	
TSC 3074	6 A	TSC 1374	15 A		
TSC 5074	10 A	TSC 1574	23 A		
TSC 0674	14 A	TSC 3574	30 A		
TSC 6074	20 A	TSC 3774	50 A		
TSC 2674	30 A	TSC 3674	65 A		
		TSC 3874	100 A		
TSC 2079	1 A	TSC 1279	3.6 A	48 VDC (45 – 55 VDC)	
TSC 3079	2.7 A	TSC 1379	7.3 A		
TSC 5079	4.5 A	TSC 1579	11 A		
TSC 0679	6.5 A	TSC 3579	14 A		
TSC 6079	9 A	TSC 3779	23 A		
TSC 2679	15 A	TSC 3679	30 A		
		TSC 3879	45 A		
TSC 2077	0.5 A	TSC 1277	1.5 A	110 VDC (100 – 130 VDC)	
TSC 3077	1.2 A	TSC 1377	3 A		
TSC 5077	2 A	TSC 1577	4.5 A		
TSC 0677	3 A	TSC 3577	6.5 A		
TSC 6077	4 A	TSC 3777	10 A		
TSC 2677	6.5 A	TSC 3677	14 A		
		TSC 3877	20 A		
TSC 2078	0.25 A	TSC 1278	0.8 A	220 VDC (200 – 250 VDC)	
TSC 3078	0.6 A	TSC 1378	1.5 A		
TSC 5078	1 A	TSC 1578	2.4 A		
TSC 0678	1.5 A	TSC 3578	3.5 A		
TSC 6078	2 A	TSC 3778	5 A		
TSC 2678	3.2 A	TSC 3678	7 A		
		TSC 3878	10 A		

Height: 1U = 44.45 mm (1.75)

Other output voltages on request

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

<b>Models</b>					
<b>3U Height Modules</b>		<b>6U Height Modules</b>			
<b>Order Code</b>	<b>Output current max.</b>	<b>Order Code</b>	<b>Output current max.</b>	<b>Output voltage (adjust.range)</b>	<b>Input voltage range</b>
TSC 2090	8 A	TSC 1290	30 A	5 VDC (4.5 – 5.5 VDC)	93 – 138 VAC / 185 – 264 VAC (selectable) 50 / 60 Hz
TSC 3090	20 A	TSC 1390	50 A		
TSC 5090	35 A	TSC 1590	80 A		
TSC 0690	50 A	TSC 3590	110 A		
TSC 6090	80 A	TSC 3790	165 A		
TSC 2690	100 A	TSC 3690	220 A		
TSC 2092	4 A	TSC 1292	15 A	12 VDC (11 – 13 VDC)	
TSC 3092	12 A	TSC 1392	30 A		
TSC 5092	20 A	TSC 1592	42 A		
TSC 0692	26 A	TSC 3592	56 A		
TSC 6092	40 A	TSC 3792	85 A		
TSC 2692	60 A	TSC 3692	115 A		
TSC 2094	2.4 A	TSC 1294	7.5 A	24 VDC (23 – 26 VDC)	
TSC 3094	6 A	TSC 1394	15 A		
TSC 5094	10 A	TSC 1594	23 A		
TSC 0694	14 A	TSC 3594	30 A		
TSC 6094	20 A	TSC 3794	50 A		
TSC 2694	30 A	TSC 3694	65 A		
		TSC 3894	100 A		
TSC 2099	1 A	TSC 1299	3.6 A	48 VDC (45 – 55 VDC)	
TSC 3099	2.7 A	TSC 1399	7.3 A		
TSC 5099	4.5 A	TSC 1599	11 A		
TSC 0699	6.5 A	TSC 3599	14 A		
TSC 6099	9 A	TSC 3799	23 A		
TSC 2699	15 A	TSC 3699	30 A		
		TSC 3899	45 A		
TSC 2097	0.5 A	TSC 1297	1.5 A	110 VDC (100 – 130 VDC)	
TSC 3097	1.2 A	TSC 1397	3 A		
TSC 5097	2 A	TSC 1597	4.5 A		
TSC 0697	3 A	TSC 3597	6.5 A		
TSC 6097	4 A	TSC 3797	10 A		
TSC 2697	6.5 A	TSC 3697	14 A		
		TSC 3897	20 A		
TSC 2098	0.25 A	TSC 1298	0.8 A	220 VDC (200 – 250 VDC)	
TSC 3098	0.6 A	TSC 1398	1.5 A		
TSC 5098	1 A	TSC 1598	2.4 A		
TSC 0698	1.5 A	TSC 3598	3.5 A		
TSC 6098	2 A	TSC 3798	5 A		
TSC 2698	3.2 A	TSC 3698	7 A		
		TSC 3898	10 A		

Height: 1U = 44.45 mm (1.75)

Other output voltages on request

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

### Input Specifications

Inrush current		20x nominal input current typ.
Inrush current limiting	AC Input: DC Input:	standard with option "I"
Input current at no load		3 % full load typ.
Max ripple of dc input voltage		10 % pk-pk
Start-up delay time		100 ms typ. (softstart)
Hold up time	230 VAC Input: 115 VAC Input:	15 ms typ. 7 ms typ.

### Output Specifications

Output voltage range		adjustable (refer topmodel selection table)
Regulation	- Input variation $\pm 10\%$ - Load variation 10–90%	$\pm 0.1$ % max. $\pm 0.2$ % max.
Ripple and noise (20 MHz bandwidth)		<1 % Vout +30 mVpk-pk max.
Transient response to $\pm 1\%$		2 ms
Dynamic response		6 % typ.
Output current limitation		105 – 110 % of Iout max.
Short circuit protection		constant current, (automatic recovery)
Overvoltage protection		105 % of Vout max.
Remote sense		standard for all models

### General Specifications

Temperature ranges	- Operating - Optional - Storage	-20°C to +75°C -40°C to +75°C -40°C to +85°C
Derating		3.5 %/K above +55°C
Temperature coefficient		0.02 %/°C typ.
Efficiency	Models with 5VDC output: Other models:	70 % typ. 85 % typ.
Switching frequency		33 kHz typ.
Isolation voltage (60 sec.)	- Models with input voltage <75 VDC: - Input / Output - Input / Case - Output / Case - Models with input voltage >80 VDC and AC models: - Input / Output - Input / Case - Output / Case	1'500 VDC 1'500 VDC 1'000 VDC 3'000 VDC 3'000 VDC 1'000 VDC
Isolation resistance	- Input / Output (500VDC)	>10 MOhm
Reliability /calculated MTBF (MIL-HDBK-217F, at +40°C, ground benign)		>100'000 h
Safety standards		UL 60950-1, IEC/EN 60950-1
Electromagnetic compatibility (EMC), emissions		EN 55022, class B, FCC part 15, level B
Electromagnetic compatibility (EMC), immunity		EN 61000-6-2: 2005
Connection		H15 male connector (DIN 41612) (screw terminal for output current >50A)
Environmental compliance	- Reach - RoHS	<a href="http://www.tracopower.com/products/tsc-reach.pdf">www.tracopower.com/products/tsc-reach.pdf</a> RoHS directive 2011/65/EU

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

### Alarm Options

Power fail	– Option "p"	Signal if input voltage drops below the specified limit Signal output is NPN open collector, activated in ok-status
DC-ok	– Option "d"	Signal if input voltage drops below the specified limit Signal output is NPN open collector, activated in ok-status
Relay output	– Option "r"	Relay instead of logical output for alarm signals (in combination with option p and d)

### Control Options

External On/Off	– Option "H1"	By external closing contact, signal referred to input. By voltage signal (5V/10mA), signal referred to output. By external closing contact, signal referred to output.
	– Option "H2"	
	– Option "H3"	
External programming	– Option "e"	External programming of the output voltage by a potentiometer or an external voltage of 0VDC to 10VDC. Details need to be specified.

### I/O Options

Current sharing	– Option "cs"	Provides balanced load for units in parallel operation. Controlled over interconnecting wire.
Decoupling diode	– Option "dd"	For redundant operation. Internal fault of one unit does not affect other units in a parallel circuit.
Inrush current limiting	– Option "i"	A thermistor in series to the input lines reduces its resistance when it gets warm.

### Mechanical Options

Wall mount casing	– Option "w"	Module is screwed on a mounting plate for install in a cabinet. This option includes screw terminal block for connection.
Chassis mount casing	– Option "cha"	Option is not available for all series. Please request
Din rail	– Option "din"	Option is not available for all series. Please request
Mechanical strength	– Option "ms"	Rugged construction for harsh environment
Extended temperature range	– Option "c"	The unit is designed and tested for operation at an ambient temp. range of –40°C to +75°C

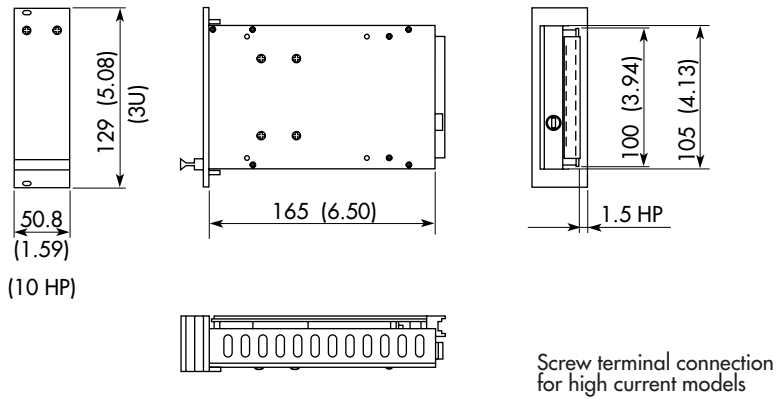
Further options and combinations on request

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



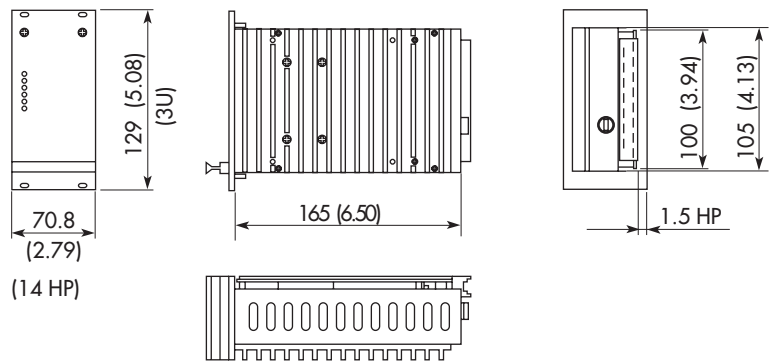
**Outline Dimensions**

**TSC 2000 Models:**



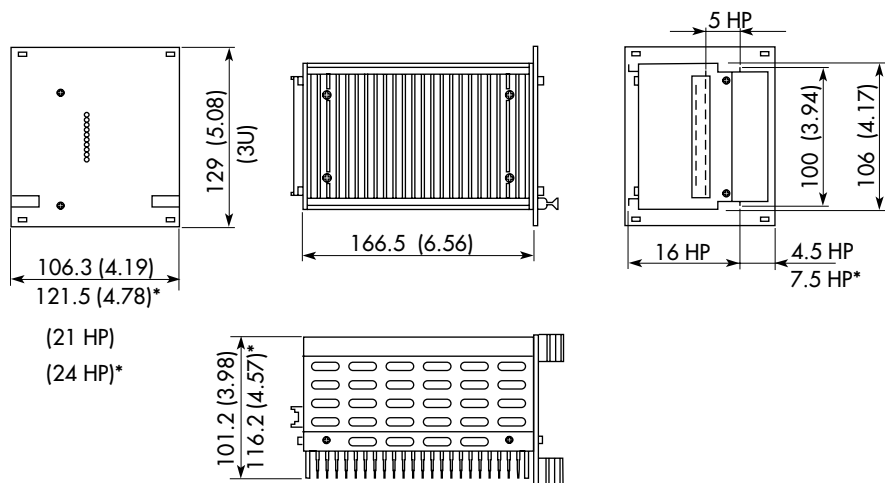
**Weight: 0.9 kg (31.7 oz)**

**TSC 3000 Models:**



**Weight: 1 kg (35.2 oz)**

**TSC 5000 Models:**



**Weight:**  
1.7 kg (59.9 oz)  
2.1 kg (74.0 oz) \*

\* 5 VDC output units

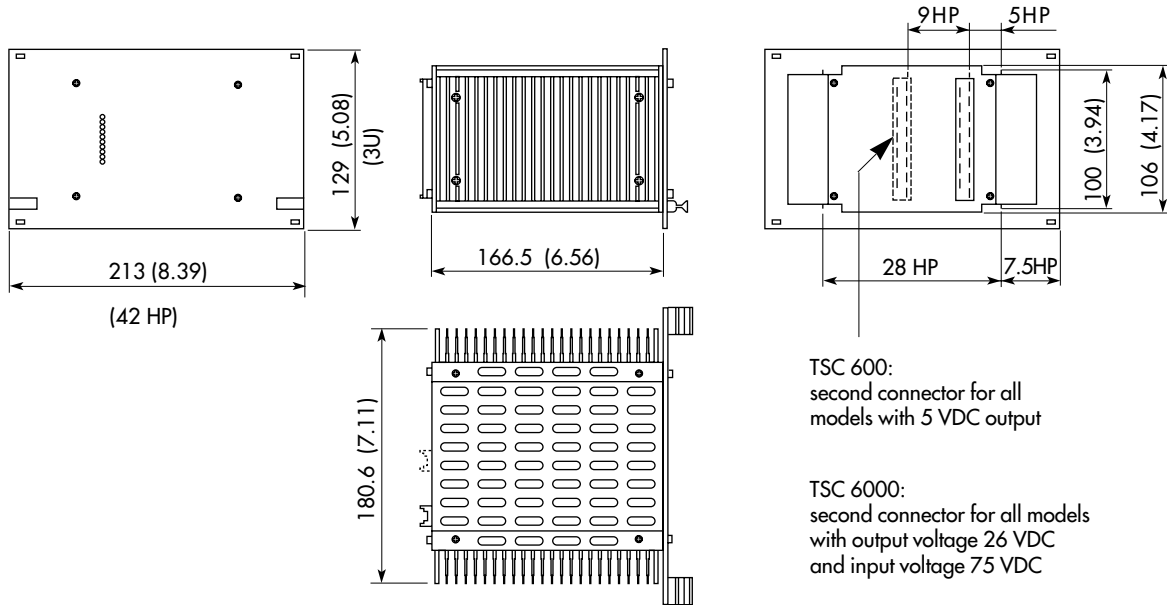
**1 U = 44.45 mm (1.75")**

**1 HP = 5.08 mm (0.2")**

Specifications can be changed any time without notice.

**Outline Dimensions**

TSC 600 Models:  
TSC 6000 Models:



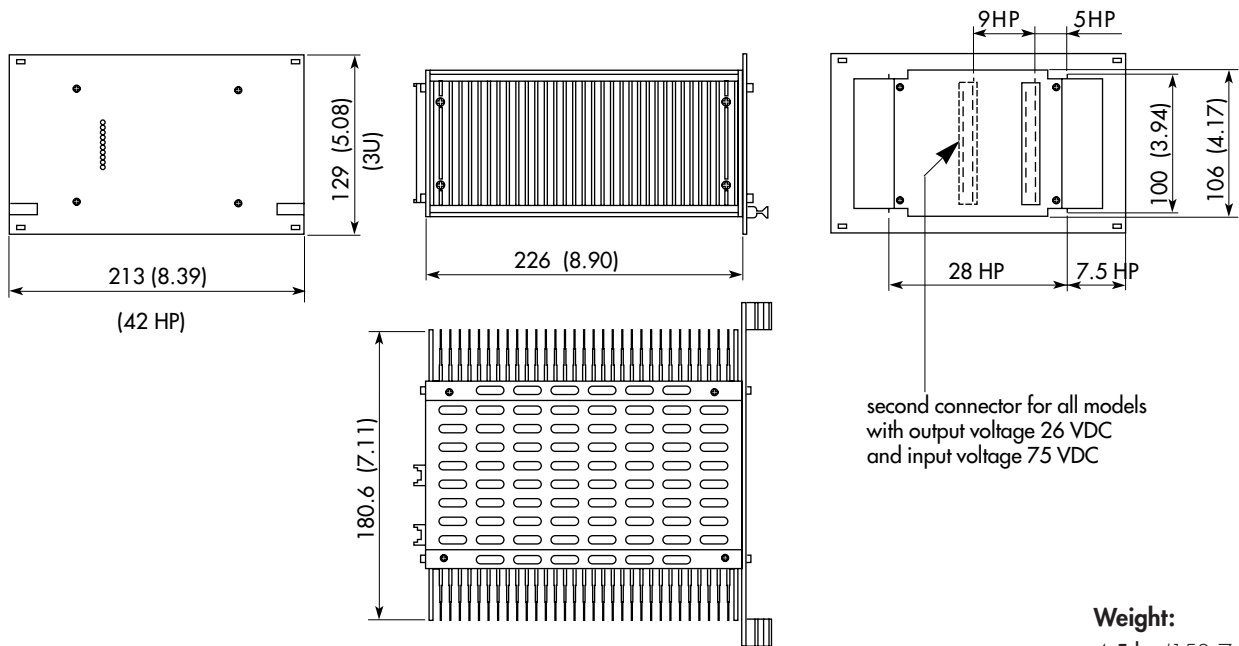
TSC 600:  
second connector for all  
models with 5 VDC output

TSC 6000:  
second connector for all models  
with output voltage 26 VDC  
and input voltage 75 VDC

**Weight:**

**TSC 600 :** 2.6 kg (91.7 oz)  
**TSC 6000 :** 3.5 kg (123.4)

TSC 2600 Models:



second connector for all models  
with output voltage 26 VDC  
and input voltage 75 VDC

**Weight:**

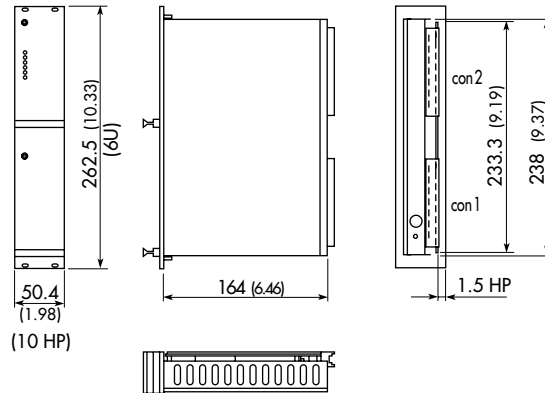
**4.5 kg (158.7 oz)**

**1 U = 44.45 mm (1.75")**     **1 HP = 5.08 mm (0.2")**

Specifications can be changed any time without notice

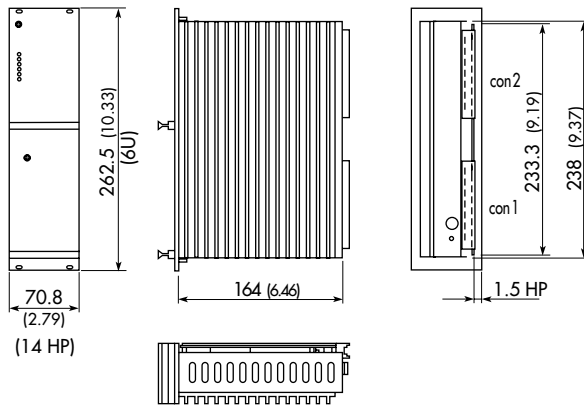
**Outline Dimensions**

**TSC 1200 Models:**



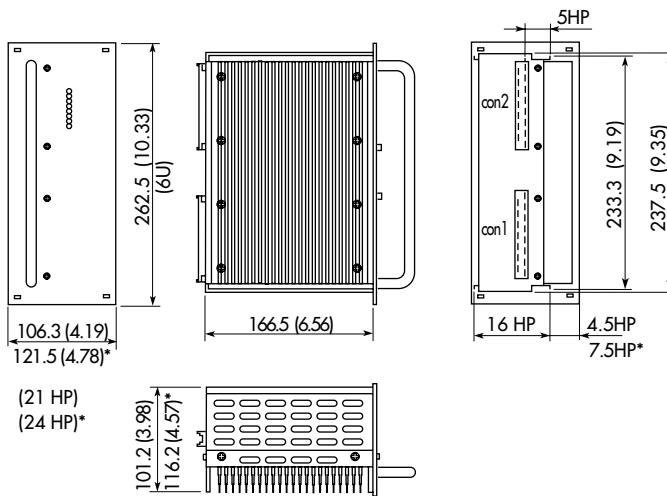
**Weight:**  
1.7 kg (59.9 oz)

**TSC 1300 Models:**



**Weight:**  
2.0 kg (70.5 oz)

**TSC 1500 Models:**



\* 5 VDC output units

**Weight:**  
3.0 kg (105.8 oz)  
3.7 kg (130.5 oz)\*

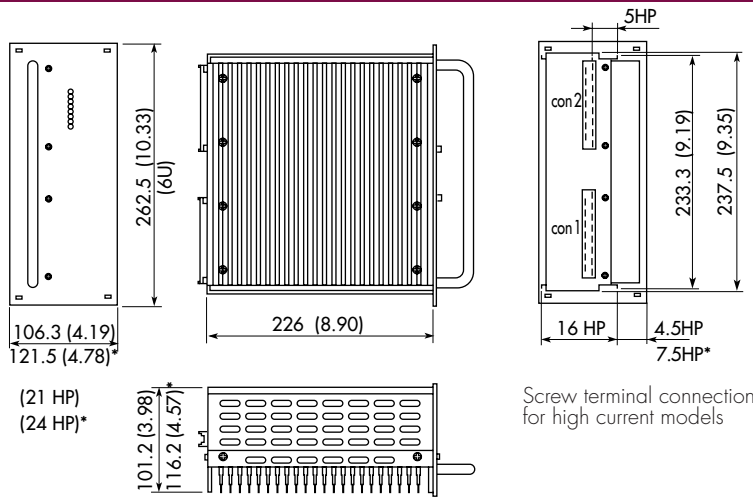
1 U = 44.45 mm (1.75")

1 HP = 5.08 mm (0.2")

Specifications can be changed any time without notice

**Outline Dimensions**

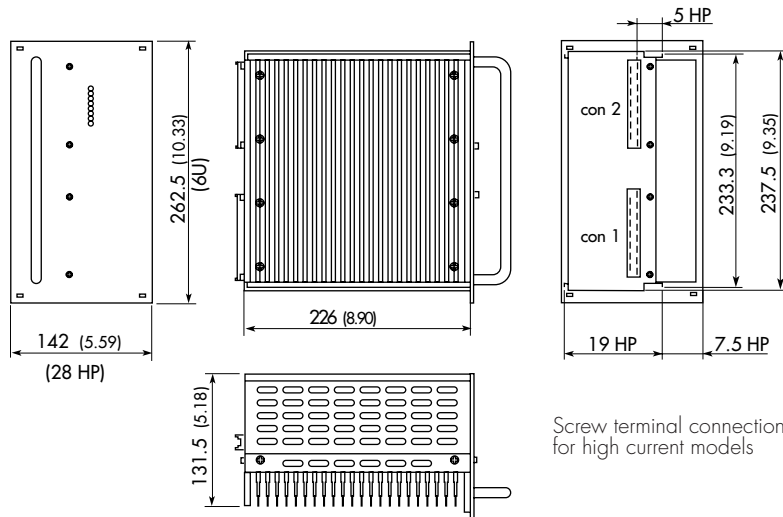
**TSC 3500 Models:**



**Weight:**  
5.0 kg (176.3 oz)  
6.2 kg (218.6 oz)\*  
\* 5 VDC output units

Screw terminal connection for high current models

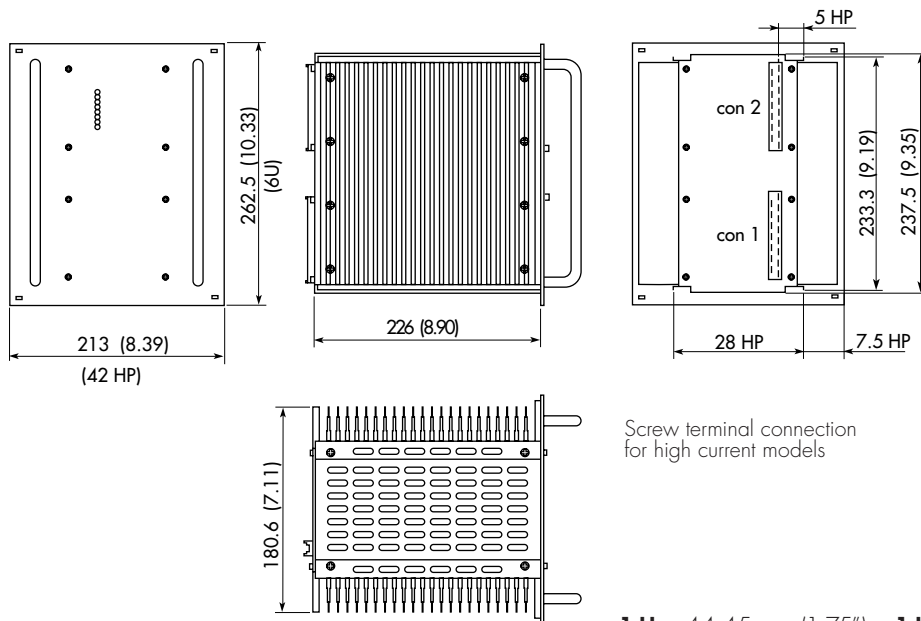
**TSC 3700 Models:**



**Weight:**  
6.5 kg (229.2 oz)

Screw terminal connection for high current models

**TSC 3600 Models:**



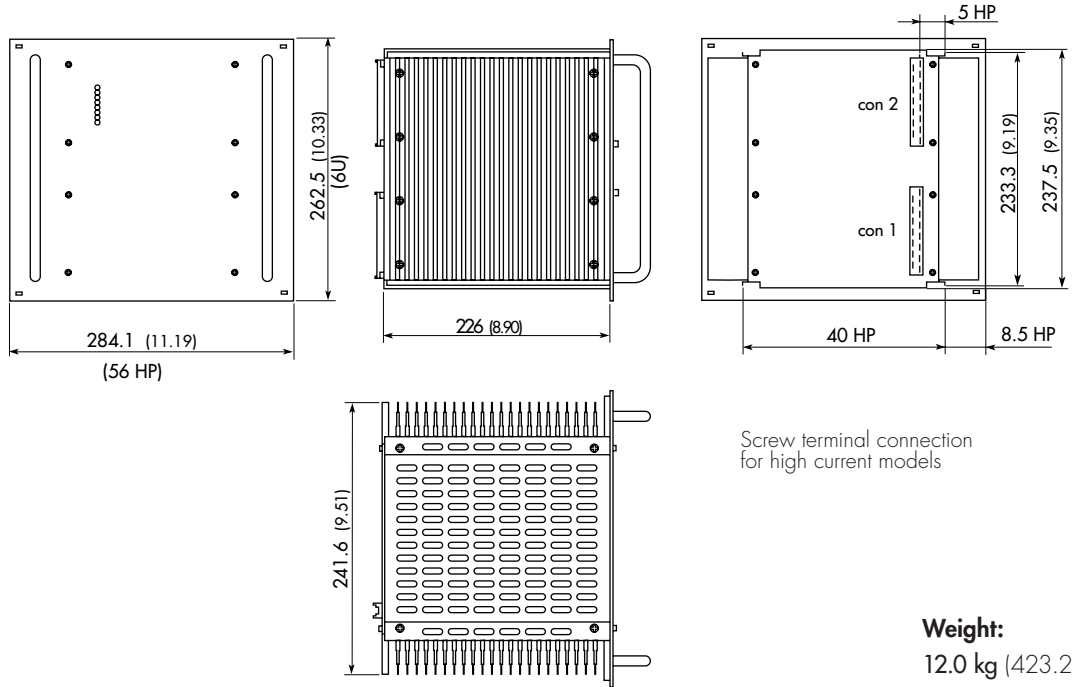
**Weight:**  
10 kg (352.7 oz)

Screw terminal connection for high current models

1 U = 44.45 mm (1.75") 1 HP = 5.08 mm (0.2")

**Outline Dimensions**

TSC 3800 Models:



1 U = 44.45 mm (1.75") 1 HP = 5.08 mm (0.2")

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at [www.tracopower.com](http://www.tracopower.com)