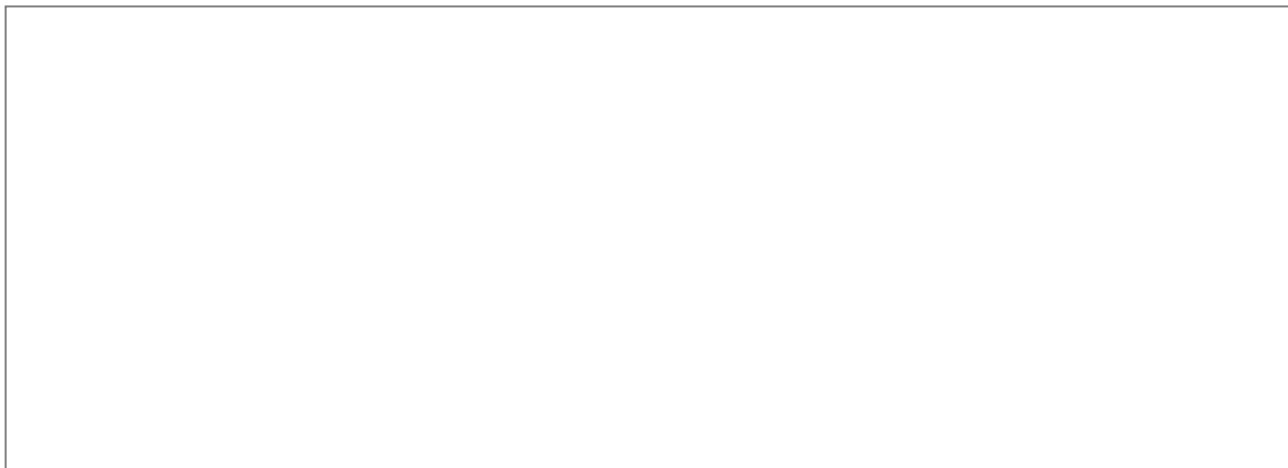


## TECS129, \_140, \_149 SINGLE SCR MODULES

- ▶ Extremely high power density
- ▶ Line voltage range up to 800 V<sub>RMS</sub>
- ▶ High reliability
- ▶ Modularity
- ▶ User friendly assembly and maintenance
- ▶ Cost effective solution
- ▶ Suitable for heavy duty applications



### Maximum Ratings

Parameters	Part number	TECS129	TECS140	TECS149	Conditions	Units
I <sub>T(AV)</sub>		1290	1400	1490	180° cond, half sine T <sub>a</sub> = 40 °C Air velocity = 7.5 m/s	A
I <sub>T(RMS)</sub>		2025	2198	2339		A
I <sub>TSM</sub>		38	38	44	50 Hz, T <sub>j</sub> = T <sub>jmax</sub> , V <sub>R</sub> = 0 V	kA
I <sub>TSM</sub>		40.1	40.1	46.4	60 Hz, T <sub>j</sub> = T <sub>jmax</sub> , V <sub>R</sub> = 0 V	kA
I <sup>2</sup> t		7220	7220	9680	50 Hz, T <sub>j</sub> = T <sub>jmax</sub> , V <sub>R</sub> = 0 V	kA <sup>2</sup> s
I <sup>2</sup> t		6570	6570	8809	60 Hz, T <sub>j</sub> = T <sub>jmax</sub> , V <sub>R</sub> = 0 V	kA <sup>2</sup> s
V <sub>DRM</sub> /V <sub>RRM</sub>		2800	2200	1800	T <sub>j</sub> = T <sub>jmax</sub>	V
T <sub>jmax</sub>		125	135	125		°C

Part Number	V code	V <sub>DRM</sub> V <sub>RRM</sub> max repetitive reverse and off-state blocking voltage [V]	I <sub>DRM</sub> I <sub>RRM</sub> @ T <sub>jmax</sub> [mA]	V <sub>L(RMS)</sub> maximum suggested RMS line voltage [V]
<b>TECS149</b>	12	1200	200	400
	16	1600	200	500
	18	1800	200	550
<b>TECS140</b>	22	2200	200	690
<b>TECS129</b>	28	2800	200	800

**On-State Characteristics**

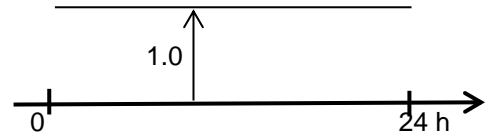
Parameters		TECS129	TECS140	TECS149		Conditions	Units
V <sub>T(TO)</sub>	Threshold voltage	0.85	0.85	0.85		T <sub>j</sub> = T <sub>jmax</sub>	V
r <sub>T</sub>	On-state slope resistance	0.20	0.20	0.12		T <sub>j</sub> = T <sub>jmax</sub>	mΩ
I <sub>H</sub>	Holding current, max	300	300	300		T <sub>j</sub> = 25°C	mA
I <sub>L</sub>	Latching current, typ	1500	1500	1500		T <sub>j</sub> = 25°C	mA
P <sub>MAX</sub>	Max power losses	3864	4318	3864		T <sub>A</sub> = 40°C	W

**Triggering Characteristics**

Parameters		TECS129	TECS140	TECS149		Conditions	Units
V <sub>GT</sub>	Gate trigger voltage	3	3	3		T <sub>j</sub> = 25°C, V <sub>D</sub> = 5V	V
I <sub>GT</sub>	Gate trigger current	300	300	300		T <sub>j</sub> = 25°C, V <sub>D</sub> = 5V	mA
P <sub>GM</sub>	Peak gate power dissipation	10	10	10		Pulse width 1 ms	W
P <sub>G(AV)</sub>	Average gate power dissipation	5	5	5			W
I <sub>FGM</sub>	Peak gate current	3	3	3			A
V <sub>FGM</sub>	Peak gate voltage (forward)	20	20	20			V
V <sub>RGM</sub>	Peak gate voltage (reverse)	5	5	5			V

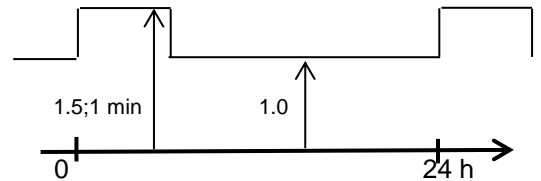
**Switching Characteristics**

Parameters		TECS129	TECS140	TECS149		Conditions	Units
di/dt	Critical rate of rise of on-state current	200	200	200		T <sub>j</sub> = T <sub>jmax</sub>	A/μs
dV/dt	Critical rate of rise of off-state voltage	1000	1000	1000		T <sub>j</sub> = T <sub>jmax</sub>	V/μs
t <sub>q</sub>	Turn-off time, typ	400	350	250		T <sub>j</sub> =T <sub>jmax</sub> , I <sub>T</sub> =1000A di/dt=-10A/μs V <sub>R</sub> =50V dV/dt=20V/μs	μs



**Maximum IEC class 1 currents for typical circuit type**

Circuit Type	TECS129	TECS140	TECS149	Conditions	Units
AC switch	2882	3128	3329	Ta = 40 °C Air velocity = 7.5 m/s	A
Center tap	2580	2800	2980		A
Two pulse regen bridge	2580	2800	2980		A
Six pulse regen bridge	3625	3900	4230		A
Double star with I.P. transf.	7325	7900	8515		A



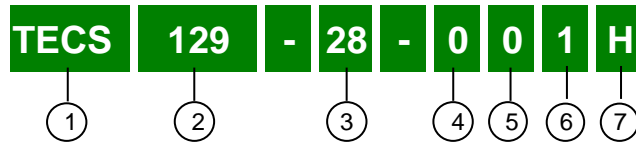
**Maximum IEC class 2 currents for typical circuit type**

Circuit Type	TECS129	TECS140	TECS149	Conditions	Units
AC switch	2170	2345	2502	Ta = 40 °C Air velocity = 7.5 m/s	A
Center tap	1943	2099	2240		A
Two pulse bridge	1943	2099	2240		A
Six pulse bridge	2724	2936	3175		A
Double star with I.P. transf.	5498	5930	6392		A

**Thermal and mechanical characteristics**

Parameters	TECS129	TECS140	TECS149	Conditions	Units
T <sub>jmax</sub> Max operating junction temperature	125	135	125		°C
T <sub>stg</sub> Storage temperature	-40 +70	-40 +70	-40 +70		°C
R <sub>thJA</sub> Thermal resistance (junction to ambient)	0.044	0.044	0.044	Air velocity = 7.5 m/s	°C/W
F Mounting torque - TEC to panel (+/- 10%) Mounting torque - busbar to TEC (+/- 10%)	14	14	14	Busbar	N·m
	14	14	14	M8 captive nut	N·m
<b>Overall dimensions</b>					
D Depth	491.5				mm
H Height	431				mm
W Width	170				mm
m Mass	27				kg

## PART-NUMBERING SYSTEM

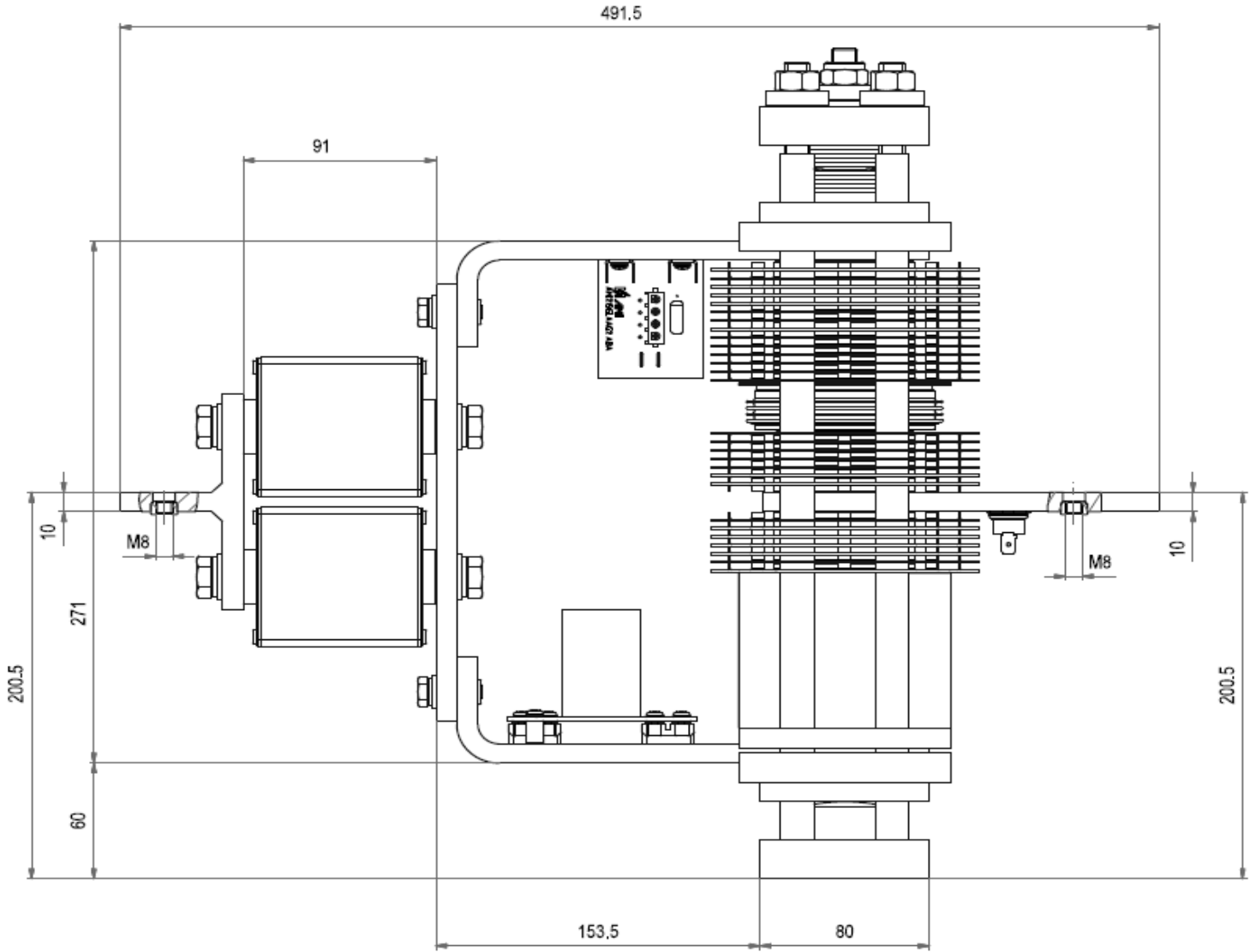


- ① Circuit configuration = Single SCR
- ② Average current / 10
- ③ Blocking voltage / 100
- ④ 0 = No fuse - 1 = with fuse for regen application
- ⑤ 0 = no blown-fuse microswitch
- ⑥ 0 = No snubber - 1 = one RC snubber -  
R = one snubber resistor
- ⑦ Position of the SCR in the assembly: H = high - L = low

In the interest of product improvement Green Power Solutions reserves the right to change any specification given in this data sheet without notice.

# TECS\_ - Main dimensions

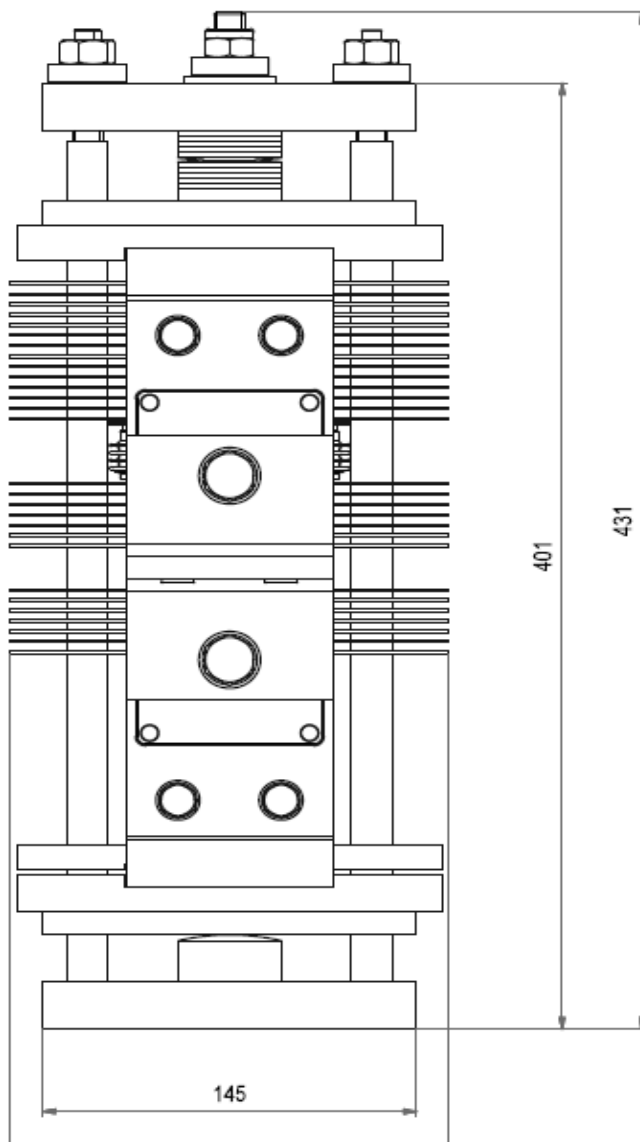
## Side view (SCR high)



dimensions in mm

## TECS\_ - Main dimensions

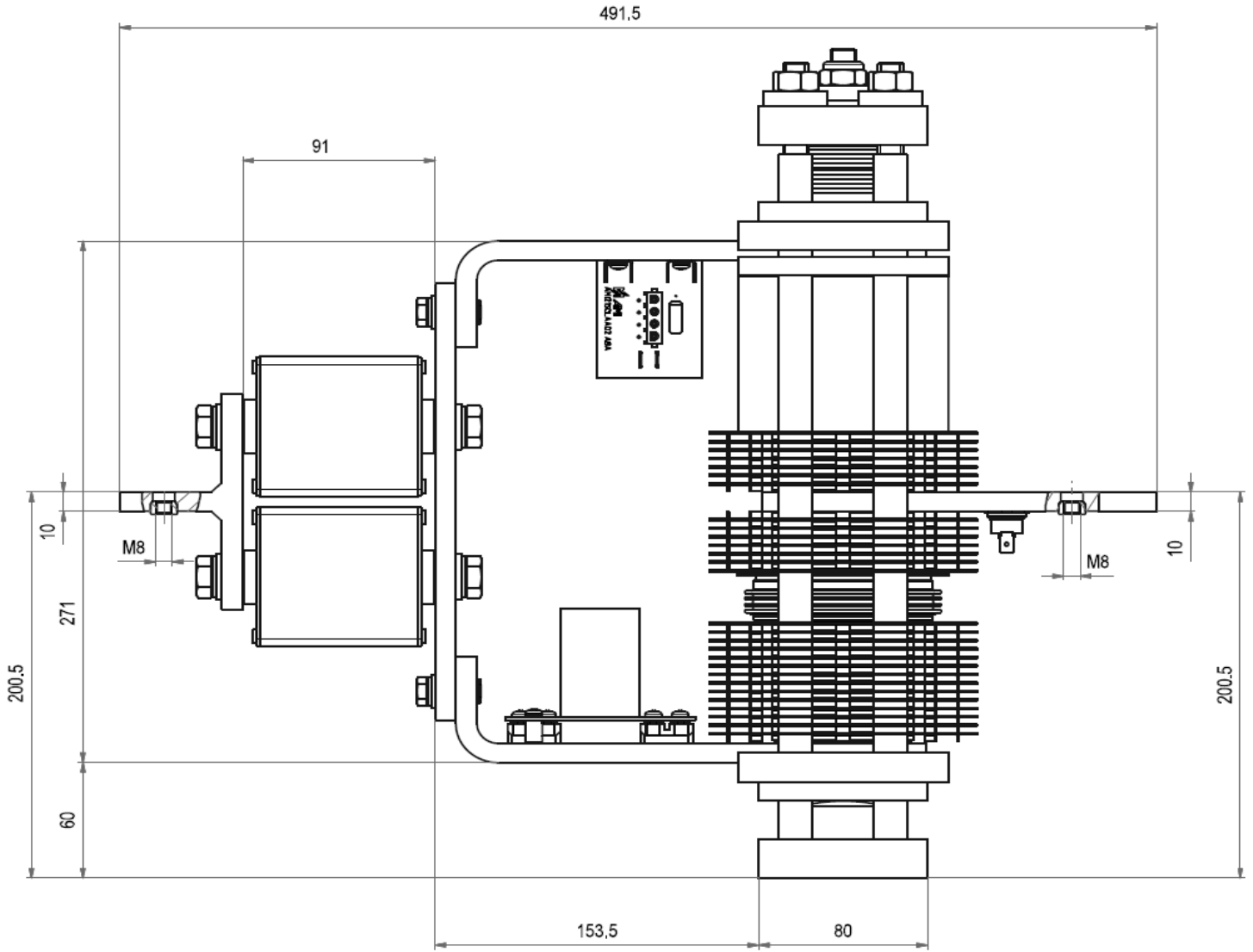
Fuse side view ( SCR high )



dimensions in mm

# TECS\_ - Main dimensions

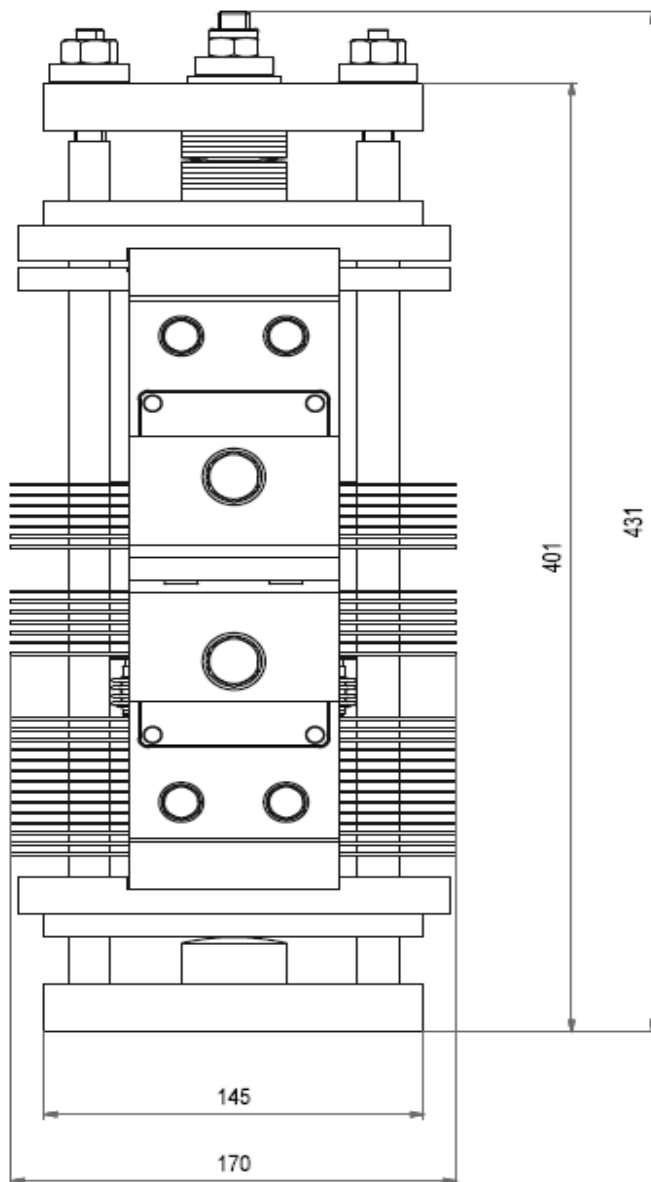
## Side view (SCR low)



dimensions in mm

## TECS\_ - Main dimensions

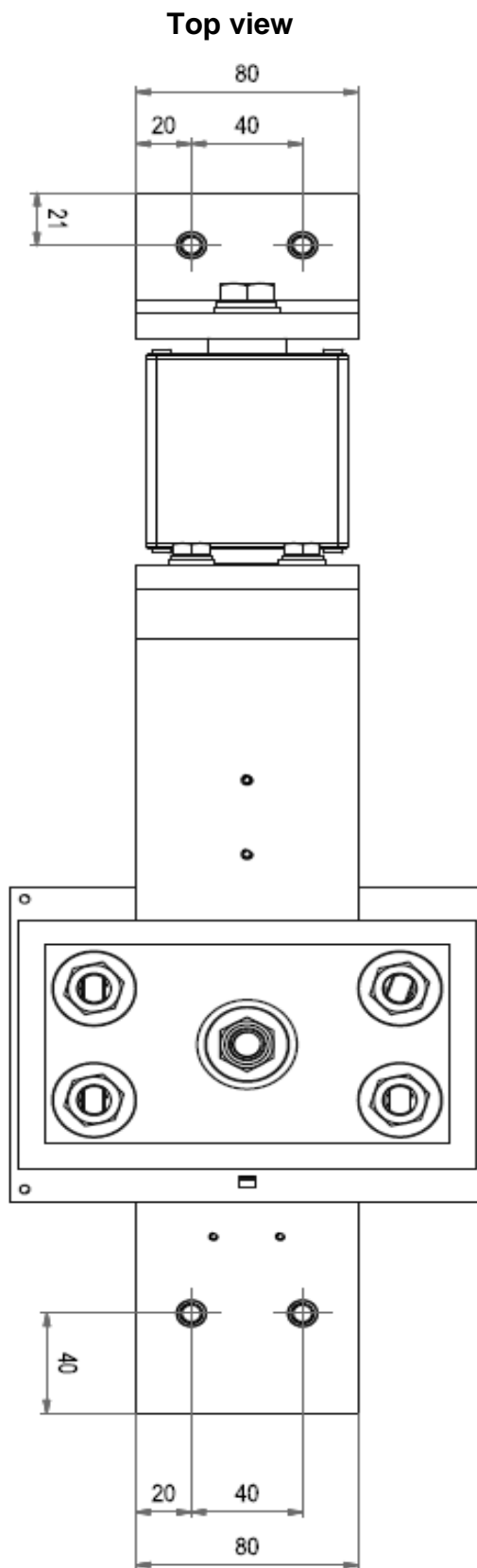
Fuse side view ( SCR low )



dimensions in mm

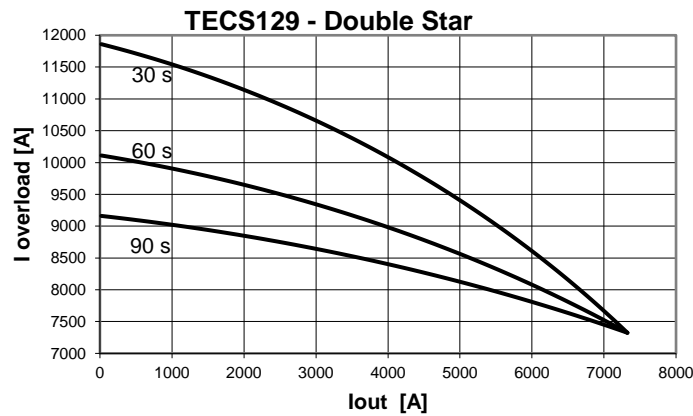
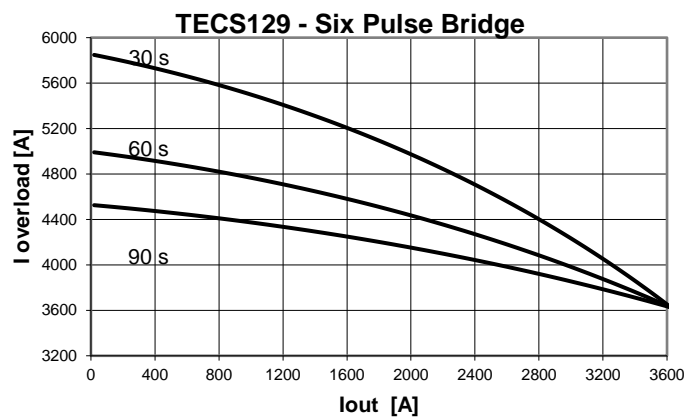
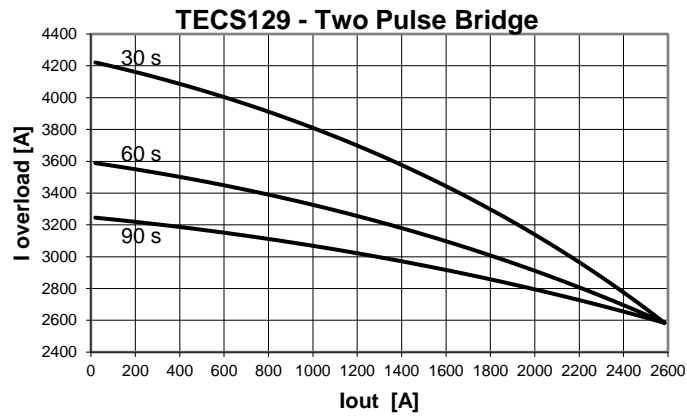


### TECS\_ - Main dimensions

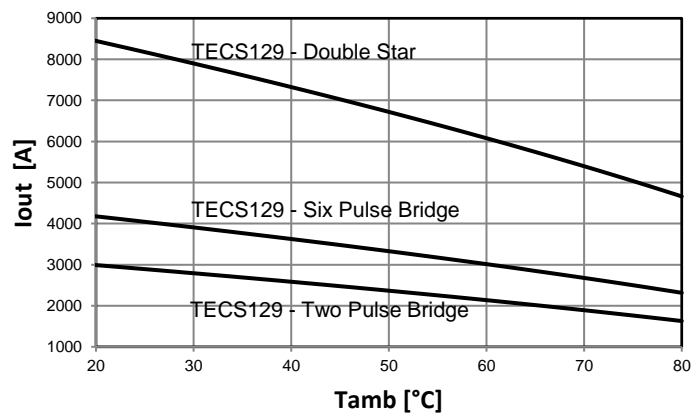


dimensions in mm

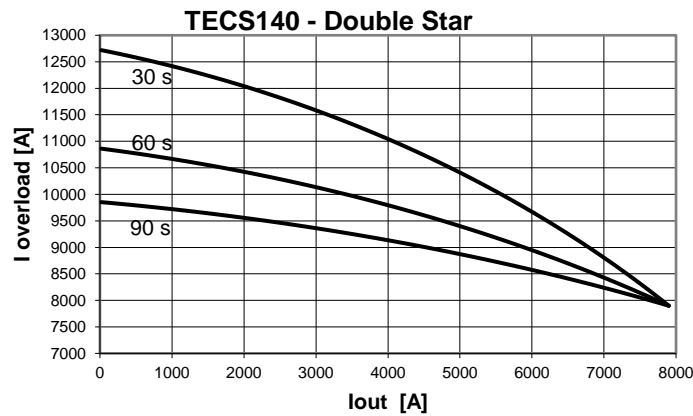
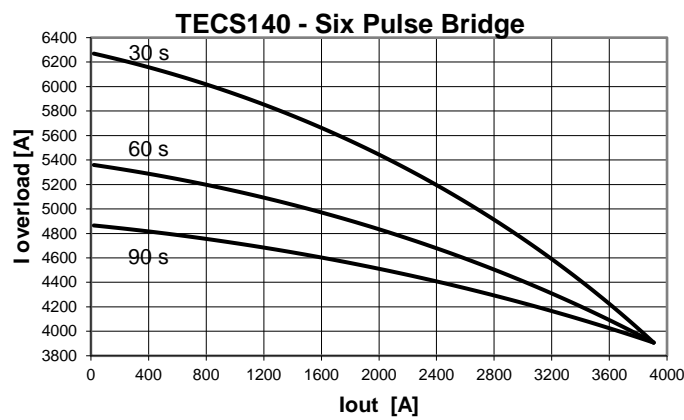
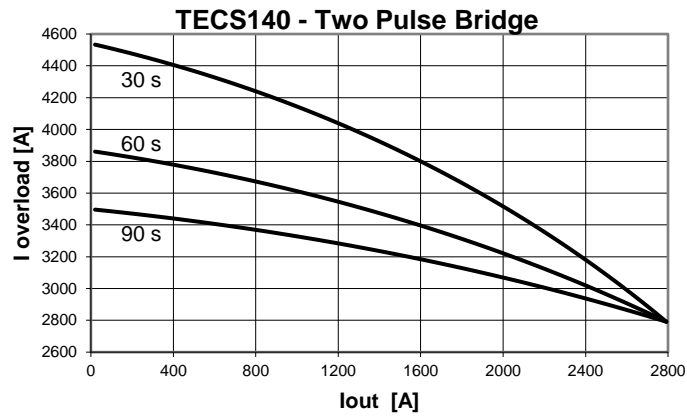
Overload capability at different overload time -  $T_{amb} = 40\text{ }^{\circ}\text{C}$



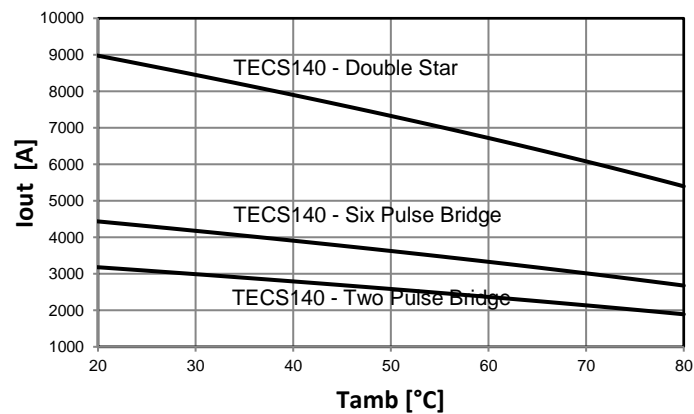
Max output vs  $T_{amb}$



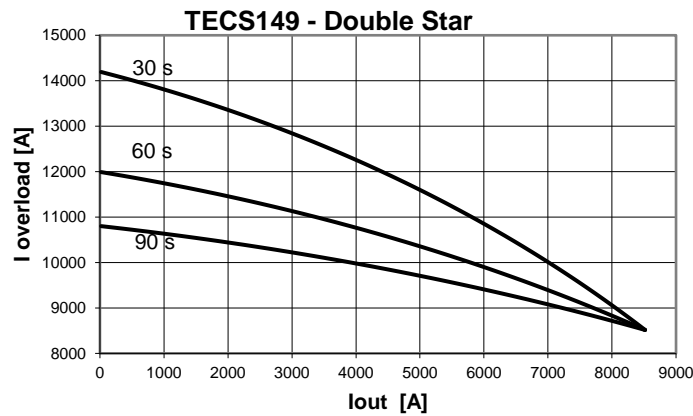
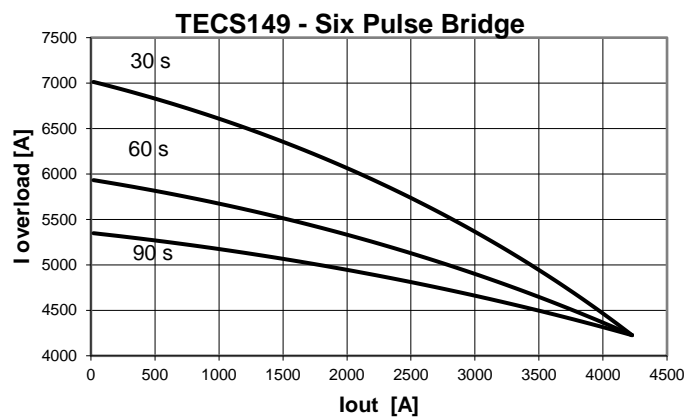
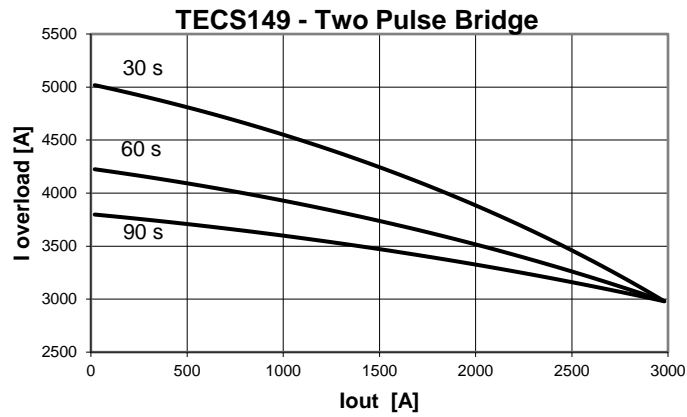
Overload capability at different overload time - Tamb = 40 °C



### Max output vs Tamb



Overload capability at different overload time - Tamb = 40 °C



### Max output vs Tamb

