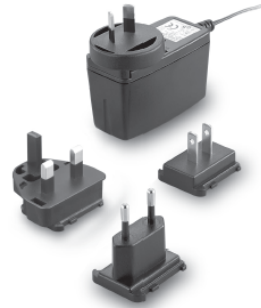




TRG10R SERIES 10 WATT AC-DC I.T.E INTERCHANGEABLE PLUG ADAPTER

Features

- Universal Input Range 90~264Vac
- High Efficiency up to 84%
- Interchangeable AC Plugs
- Class II
- No Load Power Consumption < 75mW
- Approved IEC/EN/UL 62368-1
- Meets EN55032 Class B and CISPR/FCC Class B
- Operating Altitude 2000m
- Over Voltage Protection
- Continuous Short Circuit Protection
- Meets CoC Tier 2 & DoE Level VI



AC Plug Sold Separately



MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT	VOLTAGE ACCURACY NOTE1	RIPPLE & NOISE NOTE2	LINE REGULATION NOTE3	LOAD REGULATION NOTE4	%EFF. (Typ.) NOTE5
TRG10R050	5 V	1600 mA	±2%	50 mV	±1%	±4%	77%
TRG10R059	5.9 V	1500 mA	±2%	60 mV	±1%	±3%	80%
TRG10R060	6 V	1500 mA	±2%	60 mV	±1%	±3%	82%
TRG10R075	7.5 V	1200 mA	±2%	75 mV	±1%	±3%	82%
TRG10R090	9 V	1100 mA	±2%	90 mV	±1%	±2%	84%
TRG10R120	12 V	850 mA	±2%	120 mV	±1%	±2%	82%
TRG10R136	13.6 V	750 mA	±2%	136 mV	±1%	±2%	83%
TRG10R150	15 V	700 mA	±2%	150 mV	±1%	±2%	83%
TRG10R180	18 V	550 mA	±2%	180 mV	±1%	±2%	83%
TRG10R240	24 V	400 mA	±2%	240 mV	±1%	±2%	83%

Note:

1. Voltage accuracy is set at 60% full load.
2. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple & noise measuring @20MHz BW.
3. Line regulation is measured from 100V_{ac} to 240V_{ac} with 100% full load.
4. Load regulation is measured from 60% to 100% full load and from 60% to 20% full load (60%±40% full load).
5. Typical efficiency at 230 V_{ac} and 75% full load at 25°C.

PART NUMBER

Series	Output Voltage	AC Plug Type	DC Plug Type	Cable Type	Cable Length
TRG10R	XXX	-X	-XX	X	XX
10W I.T.E Adapter	050 : 5V	Blank: Sold Separately ASUE: Include 4 Type AC Plug	See Page 7	E : UL1185 with OVP	01 : 720mm
	059 : 5.9V				02 : 1220mm
	060 : 6V				03 : 1800mm
	075 : 7.5V				11 : 720mm with Ferrite Core
	090 : 9V				12 : 1220mm with Ferrite Core
	120 : 12V				13 : 1800mm with Ferrite Core
	136 : 13.6V				See page 7 for restrictions
	150 : 15V				
	180 : 18V				
	240 : 24V				

Part Number Example:

TRG10R120-01E03, 12V_{dc} Output, DC Jack Type, Cable Length 1800mm

TRG10R120-ASUE-01E03, 12V_{dc} Output, Include 4 Type AC Plug, DC Jack Type, Cable Length 1800mm



TRG10R Series

TECHNICAL SPECIFICATIONS

(All specifications are typical at nominal input, full load at 25°C unless otherwise noted.)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input Voltage		All	90		264	V _{ac}
				120		370
Operating Case Temperature	See Derating Curve	All	-20		60	°C
Storage Temperature		All	-20		85	°C
Operating Altitude		All			2000	m

INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Operating Voltage Range		All	100		240	V _{ac}
Input Frequency Range		All	47		63	Hz
Maximum Input Current	100% Full load, V _{in} =100V _{ac}	All			0.4	A
Leakage Current		All			250	uA
Inrush Current	V _{in} =240V _{ac} , Cold start at 25°C	All			40	A

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Set Point	V _{in} =115V _{ac} and 230V _{ac} , I _o =60% Full load T _c =25°C	TRG10R050	4.9	5	5.1	V _{dc}
		TRG10R059	5.78	5.9	6.02	
		TRG10R060	5.88	6	6.12	
		TRG10R075	7.35	7.5	7.65	
		TRG10R090	8.82	9	9.18	
		TRG10R120	11.76	12	12.24	
		TRG10R136	13.328	13.6	13.872	
		TRG10R150	14.7	15	15.3	
		TRG10R180	17.64	18	18.36	
Operating Output Current Range	V _{in} =115V _{ac} and 230V _{ac} , T _c =25°C	TRG10R050			1.6	A
		TRG10R059			1.5	
		TRG10R060			1.5	
		TRG10R075			1.2	
		TRG10R090			1.1	
		TRG10R120			0.85	
		TRG10R136			0.75	
		TRG10R150			0.7	
		TRG10R180			0.55	
TRG10R240			0.4			
Holdup Time	V _{in} =115V _{ac}	All		10		ms
Output Voltage Regulation						
Load Regulation	60%±40% Full load change	TRG10R050			±4.0	%
		TRG10R059			±3.0	
		TRG10R060			±3.0	
		TRG10R075			±3.0	
		TRG10R090			±2.0	
		TRG10R120			±2.0	



TRG10R Series

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Load Regulation	60%±40% Full load change	TRG10R136			±2.0	%
		TRG10R150			±2.0	
		TRG10R180			±2.0	
		TRG10R240			±2.0	
Line Regulation	$V_{in}=100V_{ac}$ to $240V_{ac}$	All			±1.0	%
Over Voltage Protection	TVS Component to clamp	TRG10R050			7.54	V_{dc}
		TRG10R059			8.28	
		TRG10R060			8.28	
		TRG10R075			12	
		TRG10R090			13	
		TRG10R120			16.2	
		TRG10R136			16.2	
		TRG10R150			19.3	
		TRG10R180			23.5	
TRG10R240			28.8			
Over Current Protection	Auto recovery	All	110		180	%
Short Circuit Protection	Auto recovery	All				
Output Ripple and Noise	1. Add a 0.1uF ceramic capacitor and a 10uF aluminum electrolytic capacitor to output 2. Oscilloscope is 20MHz band width 3. Ambient temperature=25°C	TRG10R050			50	mV
		TRG10R059			60	
		TRG10R060			60	
		TRG10R075			75	
		TRG10R090			90	
		TRG10R120			120	
		TRG10R136			136	
		TRG10R150			150	
		TRG10R180			180	
TRG10R240			240			
Load Capacitance	1. $V_{in}=115V_{ac}$ and $230V_{ac}$ 2. Output is max. load 3. Ambient temperature=25°C	TRG10R050			1600	uF
		TRG10R059			1500	
		TRG10R060			1500	
		TRG10R075			1200	
		TRG10R090			1100	
		TRG10R120			850	
		TRG10R136			750	
		TRG10R150			700	
		TRG10R180			550	
TRG10R240			400			
Efficiency	1. $V_{in}=230V_{ac}$ 2. Output is 75% full load 3. Ambient temperature=25°C	TRG10R050		77%		%
		TRG10R059		80%		
		TRG10R060		82%		
		TRG10R075		82%		
		TRG10R090		84%		
		TRG10R120		82%		
		TRG10R136		83%		
		TRG10R150		83%		
		TRG10R180		83%		
TRG10R240		83%				



TRG10R Series

ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input to Output	1 minute	All			3000	V _{ac}
Isolation Resistance	Input to output	All	100			MΩ

FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency	Pout=max. rated power	All		67		kHz

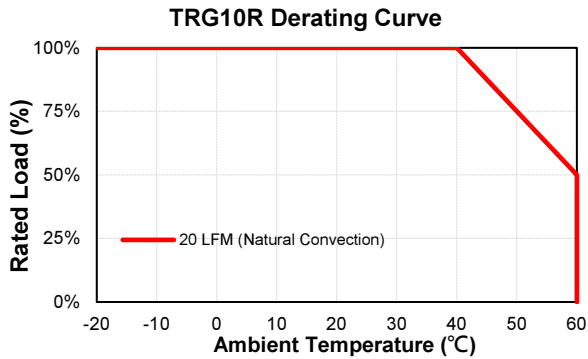
GENERAL SPECIFICATIONS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I _o =100%; T _a =25°C per MIL-HDBK-217F	All	200			k hours
Humidity	Non-condensing	All			93	% RH
Shock	Meet MIL-STD-810F Table 516.5, Table 516.5-1 10ms, each axis 3 times(±X · ±Y · ±Z axis)	All		75		g
Vibration	Meet MIL-STD-810F Table 514.5C-VIII, 15~2000Hz, X · Y · Z axis, 1 hour (each axis),. Total 3 hrs.	All		4		g
Weight		All		130		g
Dimensions		All	2.858x1.823x1.402 inches (72.6x46.3x35.6 mm)			
Safety	Class II, IEC/EN/UL 62368-1/60950-1					Ed.2.0
EMC Emission	EN 55032:2012 +AC:2013, EN 61000-3-2:2014 and EN 61000-3-3:2013 FCC 47 CFR Part 15 Subpart B/Sep. 2007 and CISPR 22/1997 (Class B Limit)					
Conducted Disturbance	EN 55032:2012 +AC:2013					Class B
Radiated Disturbance	EN 55032:2012 +AC:2013					Class B
Power Harmonics	EN 61000-3-2:2014					
Voltage Fluctuations	EN 61000-3-3:2013					
EMC Immunity	EN 61204-3:2000, EN 55024:2010, EN 61000-6-1, 3 IEC 61000-4-2, 3, 4, 5, 6, 8, 11					
Electrostatic Discharge (ESD)	IEC 61000-4-2/2001, Air Discharge: ±8kV, Contact Discharge: ±4kV					Criteria A
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3/2006					Criteria A
Electrical Fast Transient (EFT)	IEC 61000-4-4/2004 +Corr.1:2006 +Corr.2:2007					Criteria A
Surge	IEC 61000-4-5/5005					Criteria A
Conducted disturbances, induced by RF fields	IEC 61000-4-6/2006					Criteria A
Power frequency magnetic field	IEC 61000-4-8/2001					Criteria A
Voltage dips	IEC 61000-4-11/2004, Dips: 30% Reduction, Dips: >95% Reduction					Criteria A
Voltage interruptions	IEC 61000-4-11/2004, >95% reduction					Criteria B
Application Note Link						TRG10R Series App Notes

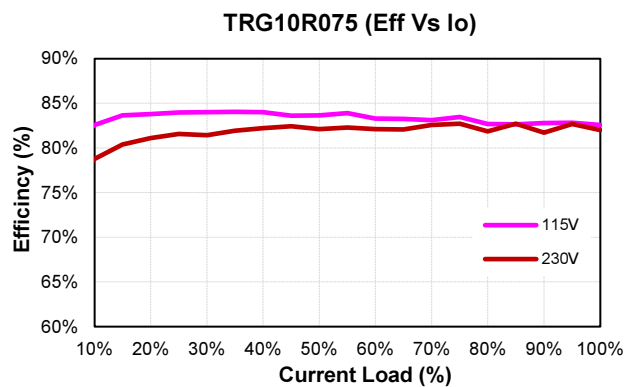
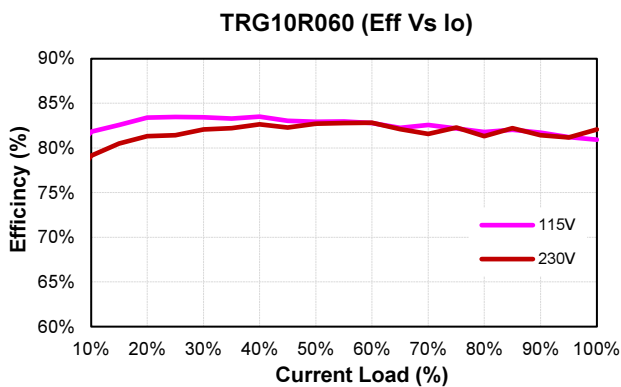
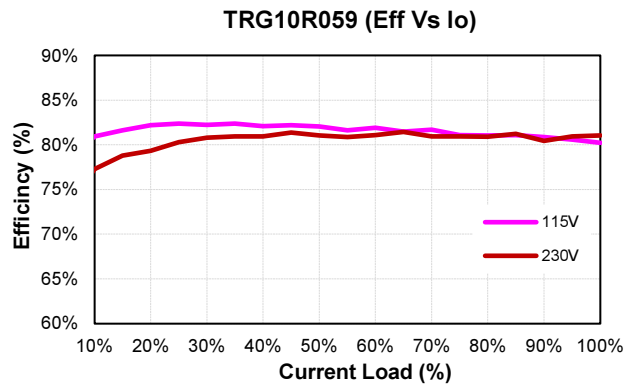
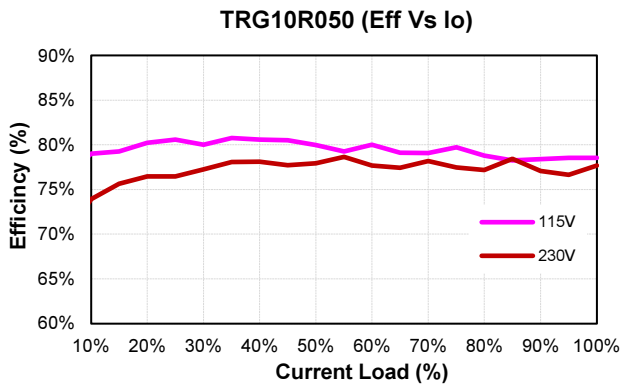


CHARACTERISTIC CURVE

Power Derating Curve



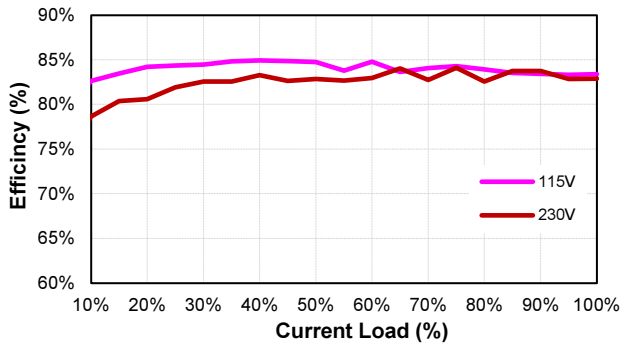
Performance Data



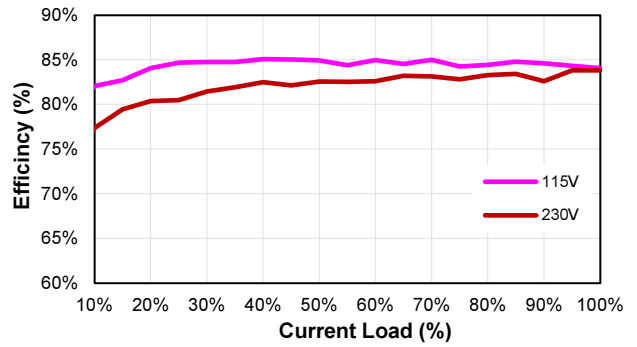


TRG10R Series

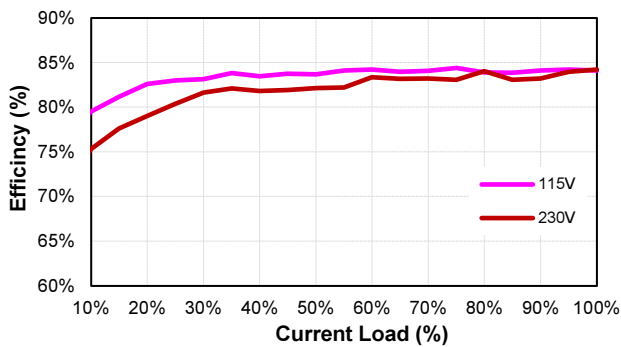
TRG10R090 (Eff Vs Io)



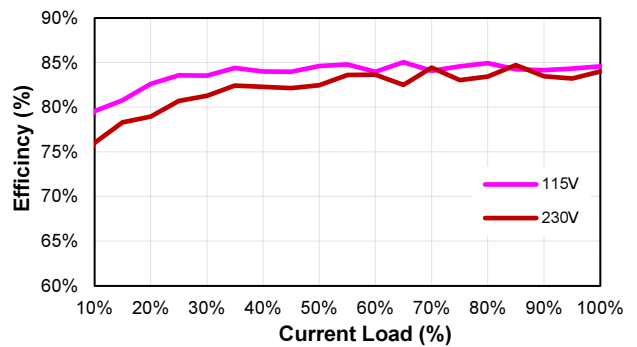
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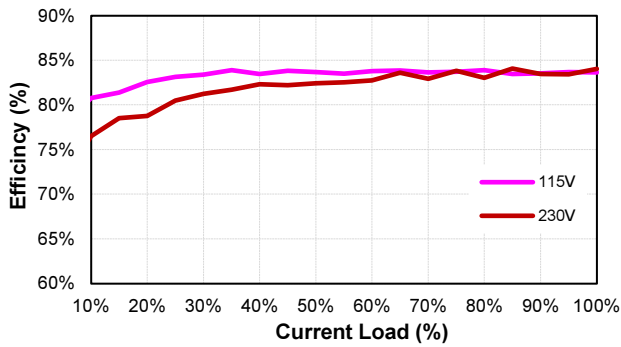
TRG10R136 (Eff Vs Io)



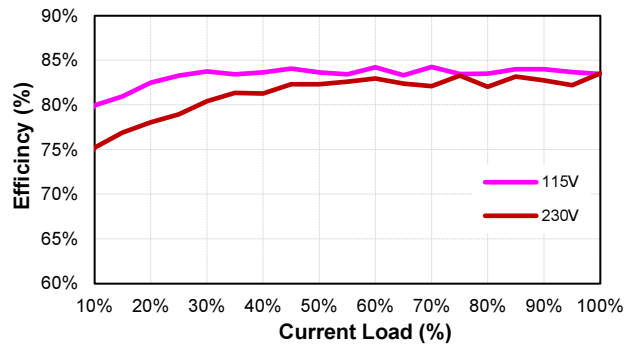
TRG10R150 (Eff Vs Io)



TRG10R180 (Eff Vs Io)



TRG10R240 (Eff Vs Io)

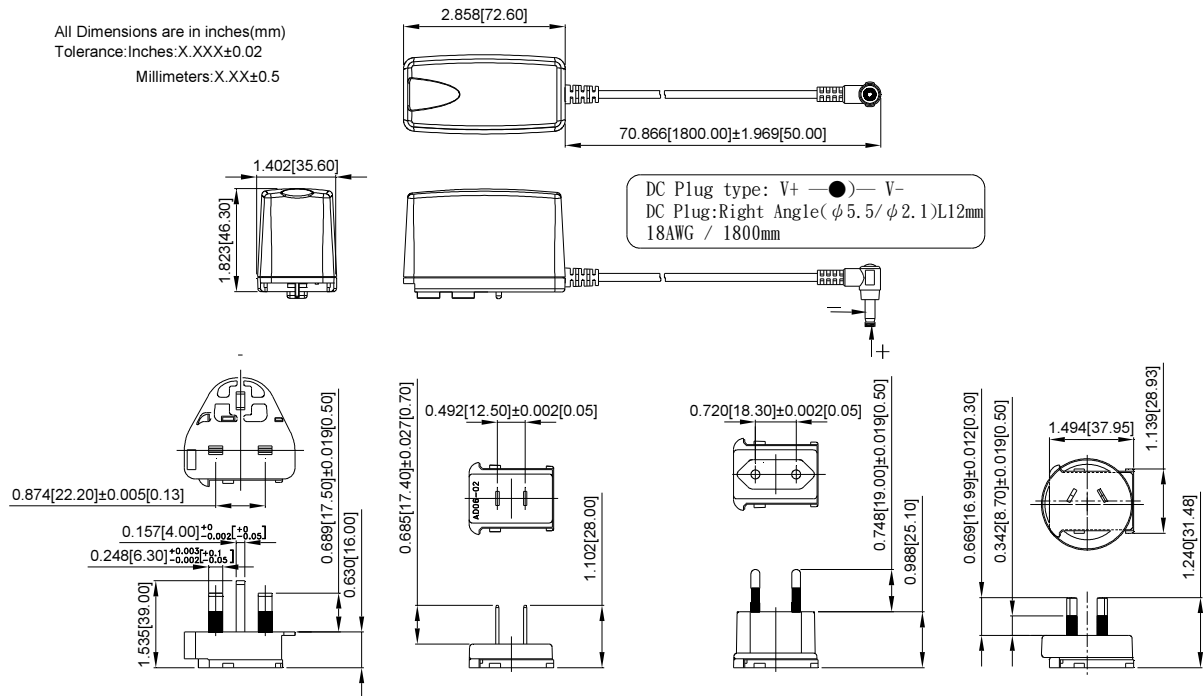




TRG10R Series

MECHANICAL SPECIFICATION

All Dimensions are in inches(mm)
Tolerance: Inches: X.XXX±0.02
Millimeters: X.XX±0.5



INTERCHANGEABLE AC PLUG SPECIFICALLY FOR TRG10R (SOLD SEPARATELY)

TYPE				
	U.K type (U)	American type (A)	European type (E)	Australian type (S)
ORDER NO.	AC PLUG R1-U	AC PLUG R1-A	AC PLUG R1-E	AC PLUG R1-S

STANDARD OUTPUT PLUG

DC Plug Type	Cable Number -XXXX	A	B	C	Cable Type	Cable Length	Cable AWG
		OD (mm)	ID (mm)	L (mm)			
 Straight/Inner+Outer- + (●) -	11E03	Φ5.5	Φ2.1	12	UL1185	1800mm without Core	18AWG for Vo: 5V, 5.9V, 6V, 7.5V, 9V 20AWG for Vo: 12V, 13.6V 22AWG for Vo: 15V, 18V 24AWG for Vo: 24V
	12E03	Φ5.5	Φ2.5	12			
	23E03	Φ5.5	Φ2.1	9.5			
	26E03	Φ5.5	Φ2.5	9.5			
 Right Angle/Inner+Outer- + (●) -	01E03	Φ5.5	Φ2.1	12			
	02E03	Φ5.5	Φ2.5	12			
	21E03	Φ5.5	Φ2.5	9.5			
	24E03	Φ5.5	Φ2.1	9.5			

※Other DC Plug Type please refer to the link: <https://www.cincon.com/productdownload/TRG10R-cable-DC-Plug.pdf>

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[TRG10R050-11E03-Level-VI](#) [TRG10R050-48E03-Level-VI](#) [TRG10R059-01E03-Level-VI](#) [TRG10R120-49E03-Level-VI](#) [TRG10R150-12E03-Level-VI](#) [TRG10R120-11E03-Level-VI](#) [TRG10R180-01E03-Level-VI](#) [TRG10R240-11E03-Level-VI](#) [TRG10R240-49E03-Level-VI](#) [TRG10R120-12E03-Level-VI](#) [TRG10R120-01E03-Level-VI](#) [TRG10R120-02E03-Level-VI](#) [TRG10R060-11E03-Level-VI](#) [TRG10R090-01E03-Level-VI](#) [TRG10R090-11E03-Level-VI](#) [TRG10R050-36E03-Level-VI](#) [TRG10R090-02E03-Level-VI](#) [TRG10R240-36E03-Level-VI](#) [TRG10R240-12E03-Level-VI](#) [TRG10R050-40E03-Level-VI](#) [TRG10R075-11E03-Level-VI](#) [TRG10R240-02E03-Level-VI](#) [TRG10R150-01E03-Level-VI](#) [TRG10R240-40E03-Level-VI](#) [TRG10R059-12E03-Level-VI](#) [TRG10R150-02E03-Level-VI](#) [TRG10R150-11E03-Level-VI](#) [TRG10R075-02E03-Level-VI](#) [TRG10R050-39E03-Level-VI](#) [TRG10R059-02E03-Level-VI](#) [TRG10R060-12E03-Level-VI](#) [TRG10R120-40E03-Level-VI](#) [TRG10R136-02E03-Level-VI](#) [TRG10R050-12E03-Level-VI](#) [TRG10R060-01E03-Level-VI](#) [TRG10R060-02E03-Level-VI](#) [TRG10R180-02E03-Level-VI](#) [TRG10R136-12E03-Level-VI](#) [TRG10R075-12E03-Level-VI](#) [TRG10R050-35E03-Level-VI](#) [TRG10R075-01E03-Level-VI](#) [TRG10R120-36E03-Level-VI](#) [TRG10R136-01E03-Level-VI](#) [TRG10R136-11E03-Level-VI](#) [TRG10R240-35E03-Level-VI](#) [TRG10R120-35E03-Level-VI](#) [TRG10R180-11E03-Level-VI](#) [TRG10R050-02E03-Level-VI](#) [TRG10R240-48E03-Level-VI](#) [TRG10R090-12E03-Level-VI](#) [TRG10R240-39E03-Level-VI](#) [TRG10R240-01E03-Level-VI](#) [TRG10R120-39E03-Level-VI](#) [TRG10R059-11E03-Level-VI](#) [TRG10R050-01E03-Level-VI](#) [TRG10R050-49E03-Level-VI](#) [TRG10R120-48E03-Level-VI](#) [TRG10R090-36E03](#)