

UA Series

40 Amp Solid-State Power Controller



- SCR output DIN mount solid-state relay / heat sink assembly
- Output ratings up-to 40 amps @ 40°C ambient temperature
- IP20 touch-safe housing with removable flaps over the input and output terminals
- Green LED input status indicator
- Compact, thermally efficient heat sink to maximize overall product life expectancy
- Direct-bond copper (DBC) substrate for superior thermal performance
- Epoxy free design eliminates stress on internal components due to epoxy expansion and contraction
- Direct-power lead-frame design reduces solder joints and enhances reliability
- EMC compliant, level 3
- Solid-state relay approvals: cURus, VDE/TÜV, and CE

Input / Output Specifications	DC Input / Control				
	U50DA	U650HDA	U50HDA-10	U90HDA	U90HDA-10
Part Number: HBC -	U50DA	U650HDA	U50HDA-10	U90HDA	U90HDA-10
Operating Voltage (Vrms; 47-440Hz)	12-280	24-600	24-510*	24-510	24-510*
Load Current Range (Amps RMS)	.15 - 30	.15 – 30	.15 – 30	.15 – 40	.15 - 40
Output Switching Type	Zero-Cross	Zero-Cross	Instantaneous	Zero-Cross	Instantaneous
Celduc Solid-State Relay Utilized	SO945460	SO965460	SO765090	SO968470	SO768090
Output Over Voltage Protection	None	None	Varistor + RC	Varistor	Varistor + RC
Transient Overvoltage (Vpk)	600	1200	950	950	950
Max On-State Voltage Drop (Vrms @ Imax)	1.1	1.1	1.1	1.1	1.1
Max Surge Current (A _{pk} ; 50/60Hz)	750/788	750/788	750/788	1800/1890	1800/1890
Max I ² T for Fusing (A ² S; 50/60Hz)	2800/2577	2800/2577	2800/2577	16200/14880	16200/14880
Max Off-State Leakage Current (mArms)	1.0	1.0	5.0	1.0	5.0
Input / Control Voltage Range	3-32Vdc	3.5-32Vdc	3.5-32Vdc	3.5-32Vdc	3.5-32Vdc
Input Current Range (mA)	10-13	10-13	10-13	10-13	10-13
Max. Turn-On/Turn-Off Time (msec)	½ AC Cycle	½ AC Cycle	0.1 / ½ Cycle	½ AC Cycle	0.1 / ½ Cycle
Input Over Voltage Protection	TVS	TVS	TVS	TVS	TVS

*HBC-UxxHDA-10 line frequency range limited to 100Hz due to output RC snubber network



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Input / Output Specifications	AC/DC Input / Control		
	U50AA	U50HAA	U90HAA
Part Number: HBC -	U50AA	U50HAA	U90HAA
Operating Voltage (Vrms; 47-440Hz)	24-275	24-600	24-600
Load Current Range (Amps RMS)	.15 – 30	.15 - 30	.15 - 40
Output Switching Type	Zero-Cross	Zero-Cross	Zero-Cross
Celduc Solid-State Relay Utilized	SO845970	SO965940	SO967940
Output Over Voltage Protection	Varistor	TVS	TVS
Transient Overvoltage (Vpk)	450	1100	1100
Max. On-State Voltage Drop (Vrms @ I _{max})	1.1	1.1	1.2
Max. Surge Current (A _{pk} ; 50/60Hz)	750/788	750/788	1200/1256
Max I ² T for Fusing (A ² S; 50/60Hz)	2800/2577	2800/2577	7200/6573
Max. Off-State Leakage Current (mA _{rms})	1.0	1.0	1.0
Input / Control Voltage Range	20-265Vac/dc	18-280Vac/dc	18-280Vac/dc
Input Current Range (mA)	5-10	5-10	5-10
Max. Turn-On/Turn-Off Time (msec)	30 / 30	30 / 30	30 / 30
Input Over Voltage Protection	None	None	None

General Specifications

Description	Specification
Dielectric Strength (Input/Output/Heat Sink)	4,000 Vrms
Ambient Operating Temperature Range	-40 to +80 °C
Weight	0.75 lbs (340 g)
Solid State Relay Housing Material	UL94 V-0 Polymers
Heat Sink Material	Aluminum
Input Terminal Screw Torque Range (in-lb/Nm)	13 - 17 / 1.5 - 2.0
Load Terminal Screw Torque Range (in-lb/Nm)	21 - 26 / 2.4 - 3.0

Available Options (Suffix at end of part number)

- M MOV (metal oxide varistor) overvoltage protection
- TP Through-panel mounting
- PM Panel mounting
- ND Without DIN rail clip
- CT Current transducer
- 2 Two-pole configuration (for three-phase loads)
- 3 Three-pole configuration (for three-phase loads)
- WH Wiring harness for multiple pole configurations

Nomenclature Examples:

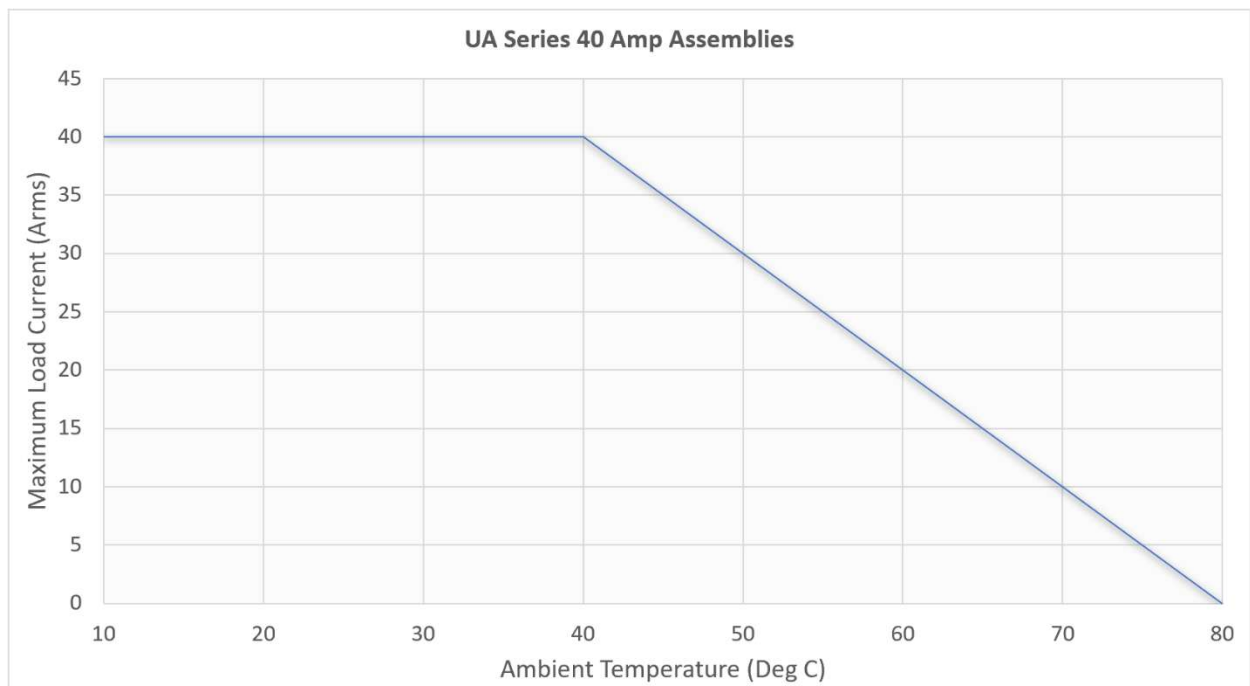
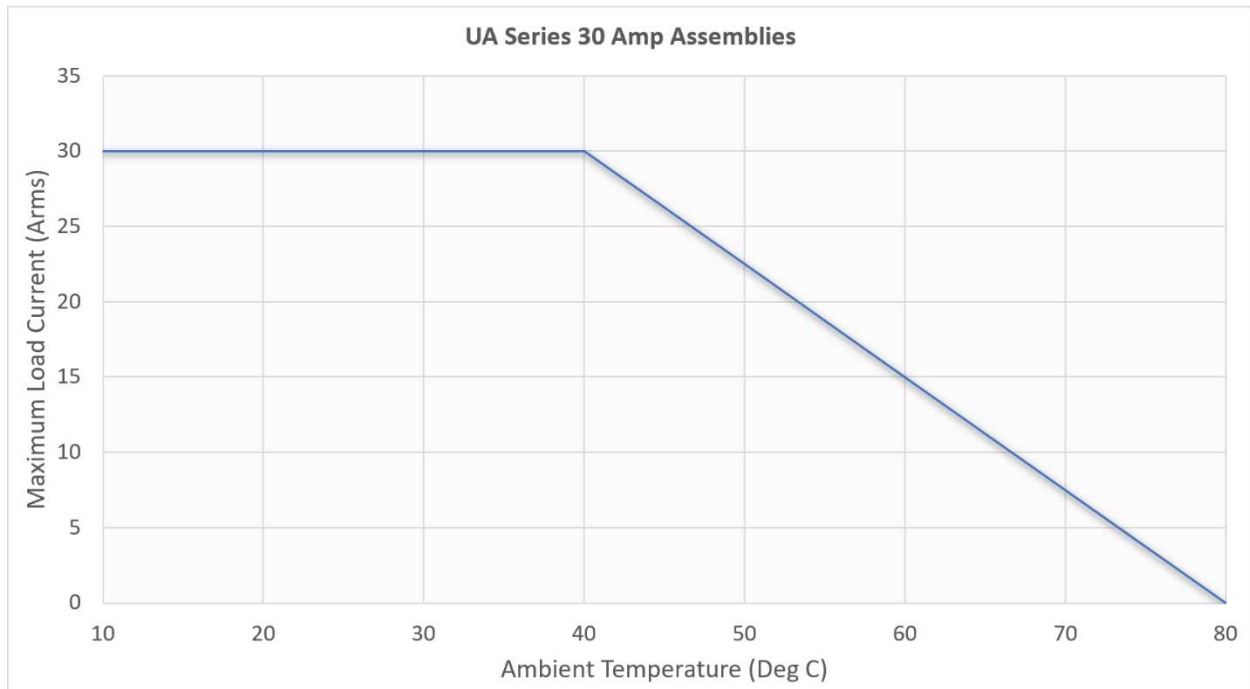
HBC-U650HDA with MOV = HBC-U650HDA-M

Two-Pole HBC-U650HDA with Wire Harness = HBC-U650HDA-2-WH

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Derating Curves:



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Termination Specifications:

Input / Output Connections:

Input Connections (1 or 2 wires):

Solid Wire – No Ferrule



14 AWG – 18 AWG
0.75 mm² – 2.5 mm²

Stranded – W/Ferrule*

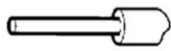


14 AWG – 18 AWG
0.75 mm² – 2.5 mm²



Output Connections (1 or 2 wires):

Solid Wire – No Ferrule



8 AWG – 16 AWG
1.5 mm² – 10.0 mm²

Stranded – W/Ferrule*



8 AWG – 16 AWG
1.5 mm² – 10.0 mm²



* Termination with stranded wires without ferrules is not recommended

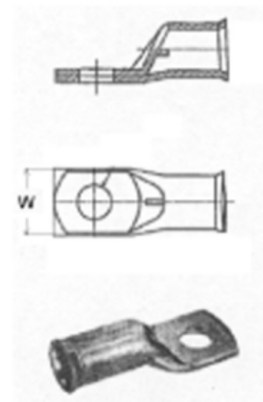
Load Terminal Connection with Ring Terminals:

Max. Width = 0.5" / 12.6mm

Suggested narrow tongue compression terminal lugs for applications with large power conductors:*

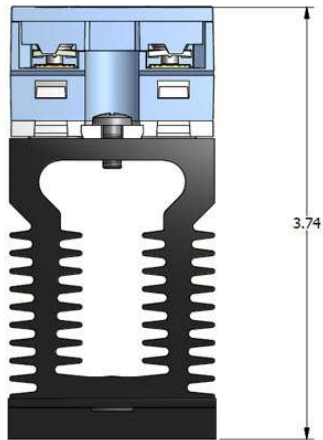
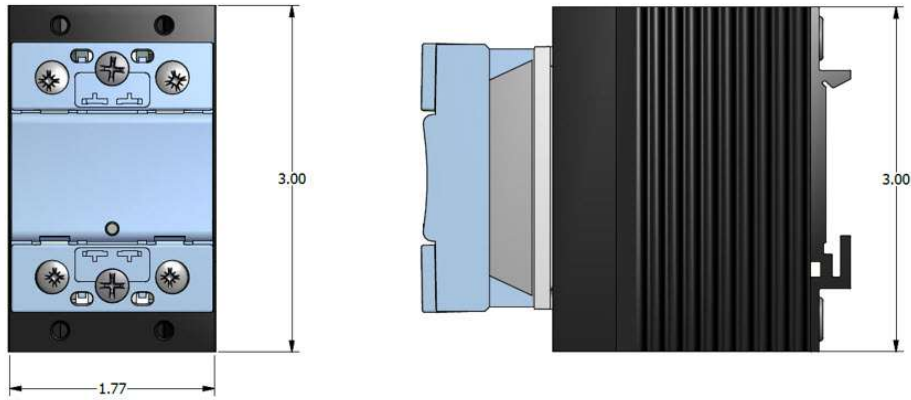
- 6 AWG / 16 mm² = Burndy YA6CLBOX
- 4 AWG / 25 mm² = Burndy YA4CLBOX
- 2 AWG / 35 mm² = Burndy YA2CLNT14
- 1 AWG / 50 mm² = Burndy YA1CLNT14

* Correct terminal selection may depend upon multiple application factors. It is the responsibility of the end user to determine whether these or similar terminals are suitable for use in their applications. Please review terminal specifications carefully to ensure suitability for use within the application.

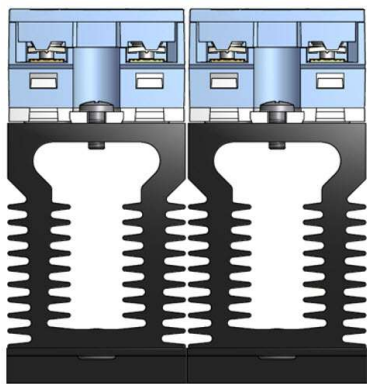


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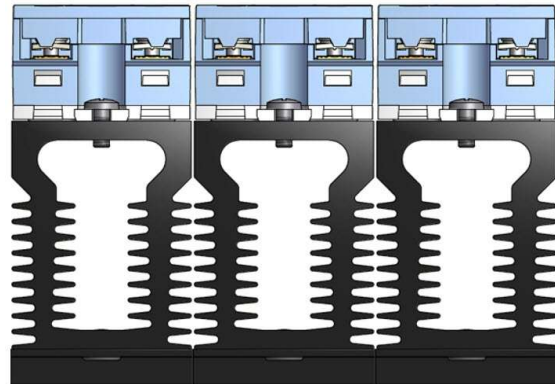


Two-Pole Assembly (-2 Suffix)



----- 3.5" -----

Three-Pole Assembly (-3 Suffix)



----- 5.25" -----