



3 PHASE UNIVERSAL TO AC & DC TO AC SSR

SOLID STATE RELAY

BS3F90D48S

35mm Plastic Din Rail to SSR 10kV isolation

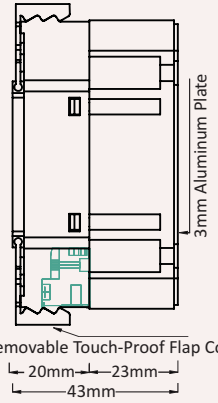
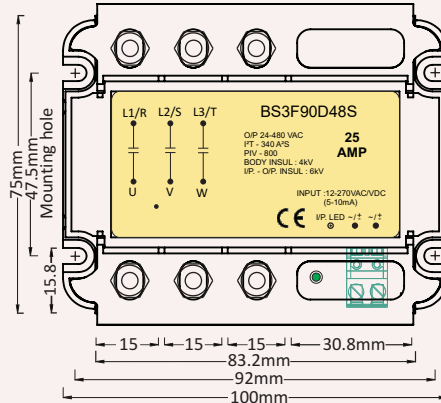


Approved By
CE
EN-62314



LEAD-FREE
RoHS
COMPLIANT

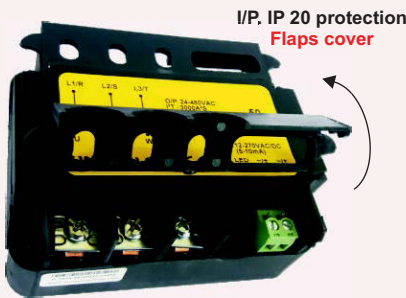
HEAT SINK TYPE "A-100" with dinrail 45 mm
90S Model
Current up to 80Amp at 55°C (26Amp 1phX3ph=78Amp)
Thermal Resistance
 $R_{\theta SA} = 0.65^{\circ}\text{C/W}$, $\Delta T = 60^{\circ}\text{C}$
Surface Area:
2630mm² x 100mm
Weight : @ 690gms



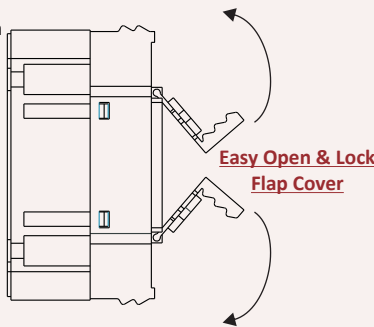
- Zero Voltage Turn-On .
- Rating from 16 Amp to 90 Amp @25°C 24-480 VAC.
- Short Circuit Current Rating As Per UL508A.
- Short Circuit Protected SSR up to 40 Amp per phase current by help of suitable "B" curve MCB.
- No need to use semiconductor Fuse due to short circuit protected SSR.
- With easy open & lock IP 20 protection Flaps on O/P Terminals.

- Fire Retardant Plastic as per UL94 VO GRADE.
- New improved SEMS Screw - Washers input & Output terminals.
- High resistance to aggressive chemicals and dust due to special PU Potting.
- Logic compatibility, Fast switching, Low coupling capacitance.

- No electromechanical or acoustical noise
- Long life cycle . Up to 10¹¹ cycles
- No contact arcing, low electromagnetic interference, high surge capability
- SSRs can be provided as surface-mount technology (SMT)parts, which means lower cost and easier SMT printed-circuit board manufacture

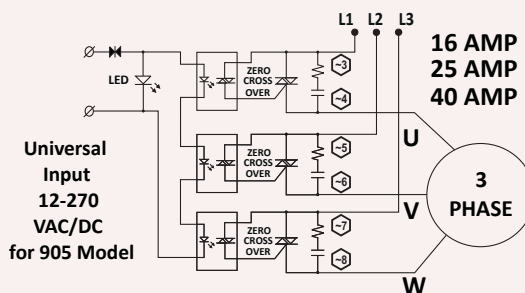


I/P. IP 20 protection
Flaps cover



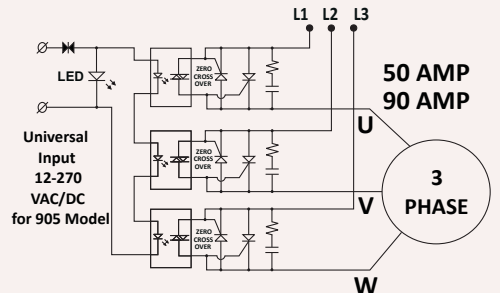
Easy Open & Lock
Flap Cover

3 PH UNIVERSAL I/P SSR



Universal Input
12-270
VAC/DC
for 90S Model

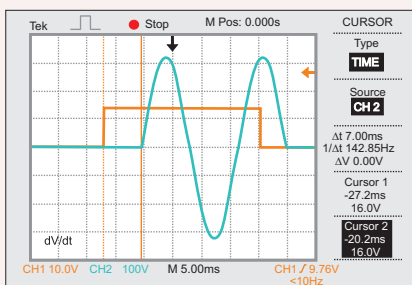
16 AMP
25 AMP
40 AMP



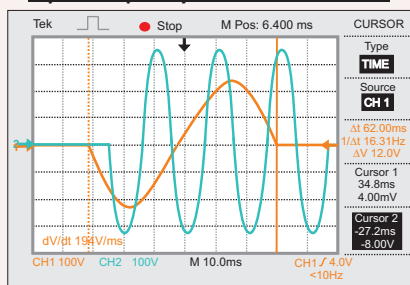
Universal Input
12-270
VAC/DC
for 90S Model

50 AMP
90 AMP

ZERO CROSSOVER Waveform

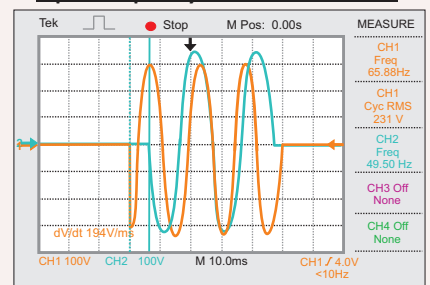


**Input Voltage Range: 12-270VAC/DC
Input Frequency Practical Waveform**



Input Voltage/Frequency : 160VAC/16 Hz
Output Voltage/Frequency : 230VAC/50 Hz

**Input Voltage Range: 12-270VAC/DC
Input Frequency Practical Waveform**



Input Voltage/Frequency : 230VAC/65 Hz
Output Voltage/Frequency : 230VAC/50 Hz

Note : Specifications are subject to change without prior notice.

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SOLID STATE RELAY

General Specification

Max Barrier Layer Temperature (T _{max})	< 125 °C
Ambient Temperature Range (T _{amb})	0-85 °C
SSR Storage Temperature Range (T _{st})	-40°C to 80°C
Input Terminal Screw Torque Range	T = 0.5 N.m (Max.)
Output Terminal Screw Torque Range	T = 2.5 N.m (Max.)
Power Factor COSφ @Max. Load @480VAC	> 0.55
Housing Material	UL-94 V0 Grade
Base Plate	Aluminium
SSR Weight	350 grams
Control Input Electrical Wire Size (Max.)	Up to 2.1 sq mm(14 AWG)
Power Output Electrical Wire Size (Max.)	Up to 25 sq mm(3 AWG)
Test Standards:	IEC 60947-5-1,IEC 62314:2016, ROHS,IP20
Pending Approvals:	UL 508,VDE ,TUV ,CSA 22-2
CE compliant :	IEC 61000-4-2,3,4,5,6, IEC 61000-6-2,4 & EN 55011

Input Technical Specifications

Parameters	Unit	ZUA (905 MODEL)
Control Voltage Range	V	12-270 VAC / VDC
Input Frequency Range	Hz	15 - 65 Hz
Control Supply Current Consumption	mA	5-10 mA
Input Impedance (Current Regulator Circuit Impedance)	Ω	2 kΩ - 27 kΩ
Minimum Turn ON Voltage	VDC	9.5 VAC/VDC
Turn OFF Voltage	VDC	< 9 VAC/VDC
Control Input Status Indication	-	Green LED Indication
Maximum Turn ON Time	mS	≤ 20 mS
Maximum Turn OFF Time	mS	≤ 20 mS

Output Technical Specifications @ 25°C Unless Specified

Parameters	Symbol	Unit	16 Amp	25 Amp	40 Amp	50 Amp	90 Amp
Operating Voltage Range	V _{AC}	V _{RMS}	24-480 VAC-905 Model				
Operating Frequency Range	f	Hz	47-63 Hz				
Peak Inverse Voltage	PIV	V _{PK}	800	800	800	1200	1200
Max. Surge Voltage With Stand Capacity (<1 Second)	V _{surge}	V _{RMS}	2700 V_{RMS} (3800 V_{PK})				
Rated Operational Current AC51a @ 20°C (Resistive Load)	I _T	Amp	16	25	40	50	90
Rated Operational Current AC53a @ 55°C (Inductive Load-Motor)	I _T	Amp	2	6	9	15	25
Maximum Load Short Circuit Protection Current @ 55°C	I _{sc}	Amp	-	-	-	15	40
"B" Curve D.P. MCB Rating for Short Circuit Protection	MCB	Amp	-	-	-	16	40
Maximum 3 Phase Motor Rating	hp	hp	1 hp	2 hp	3 hp	5 hp	7.5 hp
	kW	kW	0.745	1.49	2.23	3.72	5.59
NON Repetitive Surge Peak ON-State Current @ Rated V _{RRM} applied for 1/2 Cycle t=10 ms/t=8.33 ms (50 Hz/60 Hz)	I _{TSM} @ 50 Hz	A _p	120	260	420	800	1200
	I _{TSM} @ 60 Hz		126	273	441	840	1260
Max. I ² t for Fusing @ t=10 ms (50Hz)	I ² t	A ² s	72	340	880	3000	7200
Max. I ² t for Fusing @ t=8.33 ms (60Hz)	I ² t	A ² s	65	305	795	2750	6510
Max. Peak ON-state voltage Drop	V _{TM}	V _{RMS}	≤1.2	≤1.2	≤1.2	≤1.2	≤1.2
Minimum Isolation Resistance between Input Terminals (~1,~2) to Output Terminals (L1,L2,L3,U,V,W) @ 500 VDC	Ω	GΩ	50	50	50	50	50
Isolation Voltage Input Terminals (~1,~2) to Output Terminals (L1,L2,L3,U,V,W) for 1 Minute	V _{ISO}	kV	6	6	6	6	6
Isolation Voltage Input & Output Terminal (~1,~2,L1,L2,L3,U,V,W) to Body Isolation for 1 Minute	V _{ISO}	kV	4	4	4	4	4
Phase to Phase Isolation between terminals (L1,L2,L3) to (U,V,W) for 1 Minute	V _{ISO}	kV	4	4	4	4	4
Isolation Voltage I/P (+1,-2) to O/P terminals (R3,U4,S5,V6,T7,W8) & I/P & O/P terminals(+1,-2,R3,U4,S5,V6,T7,W8) to Body Isolation	V _{ISO}	kV	4	4	4	-	-
Max. Rate of Rise OFF-State Voltage	dV/dt	V/μS	400	400	500	600	1000
Max. Rate of Rise OFF-State Current	di/dt	A/μS	50	22	50	100	150
Max. Peak Repetitive Forward OFF-State Voltage	V _{DRM}	V	800	800	800	1200	1600
Max. Peak Repetitive Forward OFF-State current	I _{DRM}	mA	0.05	0.05	0.05	0.1	0.05
Max. Peak repetitive reverse off-state Voltage	V _{RDM}	V	800	800	800	1200	1600
Max. Peak repetitive reverse off-state current	I _{RDM}	mA	0.05	0.05	0.05	0.1	0.05
Max. DC Gate Trigger Voltage	V _{GT}	V	1.2	1.2	1.5	1.5	1.5
Max. DC Gate Trigger Current	I _{GT}	mA	50	50	50	8.8	20
Turn OFF Time	t _q	μS	25	20	35	120	200
Maximum Latching Current	I _L	mA	80	100	100	160	200
Maximum Holding Current	I _H	mA	60	75	60	150	150
Thermal Resistance R _θ (Junction to case)	R _{θ(j-c)}	°C/W	2	1.2	1.1	1	0.32
OFF State SSR Leakage Current @ Rated Voltage & Frequency (Snubber Leakage)	I _{leak}	mA	< 2 mA	< 2 mA	< 2 mA	< 2 mA	< 2 mA
SCCR Current Rating	I _{SCCR}	kA	-	-	-	10 kA	10 kA
SSR Weight - 905 Model	W	gram	350	350	350	370	370

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