

# Relay S

## Power Controller



# Product Overview

Description		Relay S 1PH	Relay S 2PH	Relay S 3PH	
CODE		RS1	RS2	RS3	
MAIN VOLT.	Max voltage 480V	●	●	●	● Standard
	Max voltage 600V	●	●	●	○ Option
	Max voltage 690V	● ≥60A	● ≥60A	● ≥60A	
LOAD TYPE	Single phase	●			
	3 phase load star no neutral or delta		●	●	
	3 phase load star with neutral			●	
	3 phase load open delta			●	
INPUT	SSR 4:30VDC	●	●	●	
	4:20 mA	○	○	○	
	0:10 Vdc	○	○	○	
	Digital Potentiometer	○	○	○	
FIRING	Zero crossing	●	●	●	
	Burst firing 4-8-16	○ (1)	○ (1)	○ (1)	
OPTION	Heater break + thyristor short circuit	○	○	○	
	Integrated fixed fuses	● >40A	● >40A	● >40A	
	Fuse & fuse holder	○ ≤40A	○ ≤40A	○ ≤40A	

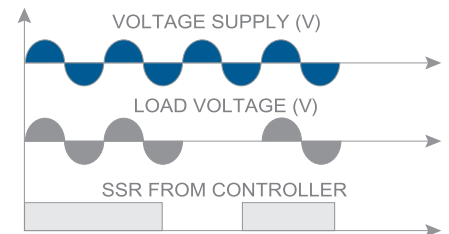
(1) 4-8-16 Cycles Simplified Burst Firing available with Analog Input only

## Benefits and features

- Voltage Supply 480-600-690V
- Internal Fuse on product range from 30 to 800A
- 100 kA Short Circuit Current (SCCR) up to 600V
- SSR and Analogue Input
- Zero Crossing & Burst Firing
- HB alarm to diagnostic Partial Load Failure
- Comply with EMC, cULus® 508 listed and cUL® listed

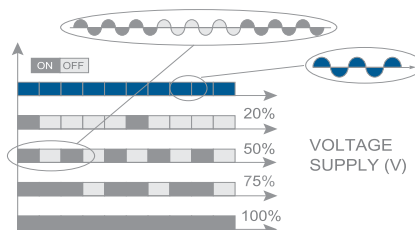
## ZERO CROSSING ZC

ZC firing mode is used with the logic output from a temperature controller and so the thyristor operates like a contactor. The cycle time is performed by the temperature controller. Zero Crossing minimizes interferences as the thyristor unit switches ON-OFF at zero voltage.



## BURST FIRING BF

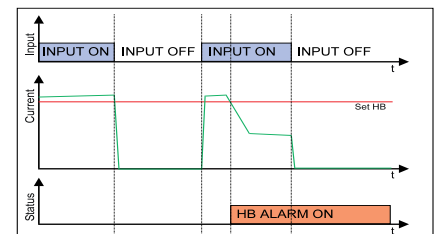
This firing is performed within the thyristor unit at zero volts, producing no EMC interference. Analogue input is necessary for BF and the number of complete cycles can be 4-8-16 Cycles for 50% power demand.



## HEATER BREAK (H.B.)

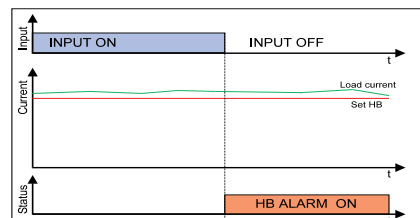
Optional electronic circuit capable of detecting all types of heating zone faults. Each zone, via the units front panel, can be calibrated by the user to set the alarm value for partial or total load failure. The capability to identify a partial load failure is 1/5 or 20%. The H.B. Alarm is microprocessor based and can automatically set its alarm value when a digital input is activated or when the CAL push button is selected on the front panel.

### Heater Break Alarm load failure



To ensure that the automatic set value is not taken from an unstable current value, the circuit will read the current 5 times and store the average value. When there are 3 equal average values in sequence, it will take this value and multiply by 0.8 to compensate for any voltage fluctuations. The intelligent circuit can also detect if the SCR (switching device) has become open circuit.

### Heater Break Alarm short circuit on SCR



# Size and Dimensions



SR3 H 121 x W 36 x D 125 - 0,44 kg



SR4 H 121 x W 72 x D 125 - 0,88 kg



SR5 H 121 x W 108 x D 125 - 1,32 kg



SR6 H 121 x W 36 x D 185 - 0,61 kg



SR7 H 121 x W 72 x D 185 - 1,22 kg



SR8 H 121 x W 108 x D 185 - 1,83 kg



SR12 H 269 x W 93 x D 170 - 3,4 kg  
SR15 H 273 x W 93 x D 170 - 3,6 kg



SR13 H 269 x W 186 x D 170 - 6,8 kg  
SR16 H 273 x W 186 x D 170 - 7,0 kg



SR14 H 269 x W 279 x D 170 - 10,2 kg  
SR17 H 273 x W 279 x D 170 - 10,6 kg



S10 H 350 x W 120 x D 230 - 5,5 kg



2xS10 H 350 x W 240 x D 230 - 11 kg



S13/S14 H 440/520 x W 262 x D 270 - 18/22 kg



S11 H 440 x W 137x D 270 - 10,5 kg  
S12 H 520 x W 137 x D 270 - 15 kg  
S15 H 560 x W 137x D 270 - 10,5 kg



S16 H 560 x W 275 x D 270 - 21 kg



S17 H 560 x W 411 x D 270 - 31,5 kg

Current	Relay S 1PH Size		Relay S 2PH Size		Relay S 3PH Size		
	Voltage	480 to 600V	690V	480 to 600V	690V	480 to 600V	690V
30, 35, 40		SR3.SR6		SR4.SR7		SR5.SR8	
60		SR12	S11	SR15	S11	SR16	S11
75				SR15		SR16	
90		SR15	S11	SR15	S11		S11
120, 150, 180, 210		SR15	S11	SR16	S13	SR17	S13
280		S10		2xS10			
300		S12	S12	S14	S14	S14	S14
350						S14	S14
400		S12	S12	S14	S14	S14	S14
450				S14	S14	S14	S14
500		S12	S12	S14	S14	S14	S14
600		S12	S12	S14	S14		
700		S12	S12	S14	S14		
800		S15	S15	S16	S16	S17	S17

■ CE Only

■ cUL® Only

# Order Code

## Max. Load Current Rating

030	30A
035	35A
040	40A
060	60A
075	75A
090	90A
120	120A
150	150A
180	180A
210	210A
300	300A
350	350A
400	400A
450	450A
500	500A
600	600A
700	700A
800	800A

## Aux. Voltage Supply

- 0 No Aux. Voltage, without HB and/or without Analog Input up to 210A
- 4 12:24V ac-dc 70mA, with HB and/or Analogue Input
- 1 90:135V > 210A <sup>(1)</sup>
- 2 180:265V > 210A <sup>(1)</sup>
- 3 238:330V > 210A <sup>(1)</sup>
- 5 342:528V > 210A <sup>(1)</sup>
- 6 40:759V (600V) > 210A <sup>(1)</sup>
- 7 540:759V (690V) > 210A <sup>(1)</sup>

## Fan Voltage

- 0 For 1 phase: No fan < 90A  
For 2 phase and 3 phase: No fan < 60A)
- 1 For 1 phase: Fan 110V (≥ 90A)  
For 2 phase and 3 phase: Fan 110V (≥ 60A)
- 2 For 1 phase: Fan 220V (≥ 90A) Std. Version  
For 2 phase and 3 phase: Fan 220V (≥ 60A) Std. version

## Manual

- 0 No manual
- 1 Italian
- 2 English
- 3 German
- 4 French

RS1 030 4 1 V D 0 0 0 0 2 1

## Model

- 1 1 phase
- 2 2 phase
- 3 3 phase

## Max. Load Voltage

- 4 480V
- 6 600V
- 7 690V

## Input

- S SSR
- V 0:10V dc <sup>(2)</sup>
- A 4:20 mA <sup>(2)</sup>

## Firing

- Z Zero crossing
- 4 Burst firing 4 cycles <sup>(3)</sup>
- 8 Burst firing 8 cycles <sup>(3)</sup>
- 6 Burst firing 16 cycles <sup>(3)</sup>

## Approvals

- 0 CE
- L cUL + CE

## Fuse & Option

- 0 No fuse <sup>(2)</sup>
- F Fuse and fuse holder up to 40A. From 60A fixed fuses
- H Fuse and fuse holder (up to 40A) / fixed fuses (from 60A)  
+ current transmitter + heater break
- X Fuse and fuse holder + current transmitter  
+ heater break + flat wiring up to 40A <sup>(4)</sup>

(1) Load voltage must be included in Selected Voltage Auxiliary Range for units > 210A

(2) With analogue input (0:10Vdc, 4:20mA) it is necessary to have the fuse (1 phase also the fuse holder on units =< 40 A)

(3) On at 50% power demand; Available only with analogue input

(4) Available up to 40A. With flat wiring it is necessary to use TU-RS1 (2;3) terminal unit

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