

1.5 Solid State Relays



Application	Types	Pins	Contacts	AC ratings	DC ratings	Socket
CSS Series						
AC Solid state relay, Instantaneous switching	CSS-I			3 A / 250 V		S10
AC Solid state relay synch. to zero crossing	CSS-Z			3 A / 250 V		S10
NPN Solid state relay	CSS-N				6 A / 48 V	S10
PNP Solid state relay	CSS-P				6 A / 48 V	S10
CRINT Series						
DC solid state switch	CRINT-C1x5				2 A / 24 V	
AC solid state switch	CRINT-C1x8			1 A / 240 V		

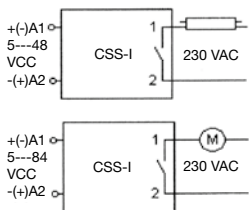
CSS-I

4-pin, Interface solid state relay, 1-pole, plug-in faston

Type	CSS-I Solid state relay For switching resistive and inductive AC loads Instantaneous
Output	1 N/O contact
Operating range	3 A, 24 ... 250 VAC, 50/60 Hz
Minimum contact load	35 mA
Control circuit	
Input voltage range	5 ... 48 VDC
Input current	10 mA
Output circuit	Instantaneous
Max. output current	3 A
Min. output current	35 mA
Output voltage range	24...250 VAC
Inrush current	150 A/10 ms
Residual current	1 mA
I ² t value	210 A ² s
Specifications	
Ambient temperature operation/storage	-40 ... 70 °C / -40 ... 85 °C
Pick-up time	0.06 ms
Release time	0.06 ms
Weight	28 g

Applications

It is specially suitable to switch inductive loads up to 3A/250 VAC. For switching loads with a high inrush or overcurrent as transformers, motors or fluorescents, the maximum output current will limit to 2 A.



Standard types

VDC 5-48

CSS-I12X/DC5-48V

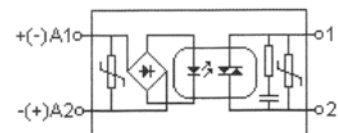
Accessories

Socket:

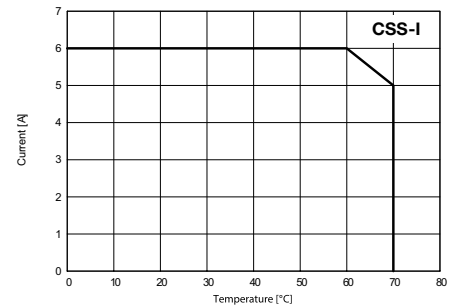
S10, S10-M, S10-P



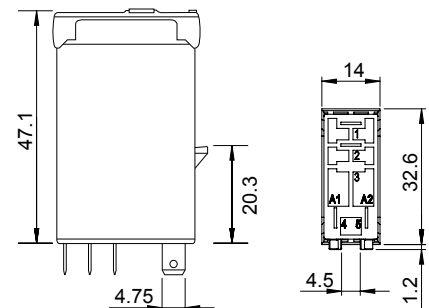
Fig. 1 CSS-I diagram



Tab. 2 AC derating curve



Dimensions [mm]



Technical approvals, conformities



CSS-Z

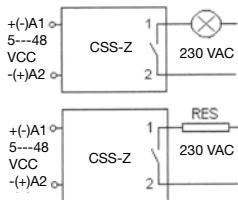
4-pin, Interface solid state relay, 1-pole, plug-in faston

Type	CSS-Z Solid state relay For switching resistive lamps and AC loads Synchronized to zero crossing
Output	1 N/O contact
Operating range	3 A, 24 ... 250 VAC, 50/60 Hz
Minimum contact load	35 mA
Control parameters	
Input voltage range	5 ... 48 VDC
Input current	10 mA
Output	Synchronized zero
Max. output current	3 A
Min. output current	35 mA
Output voltage range	24 ... 250 VAC
Inrush current	150 A/10 ms
Residual current	1 mA
I ² t value	210 A ² s
Specifications	
Ambient temperature operation/storage	-40...70 °C / -40 ... 85 °C
Pick-up time	10 ms
Release time	10 ms
Weight	28 g

Applications

Switches ohmic AC loads up to 3 A/250 VAC in the zero-point of the tension and avoids any overcurrent peak in the connection.

Suitable for switching resistors, incandescent lamps, signalling equipment, etc. Not suitable for inductive loads



Standard types

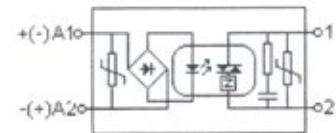
VDC 5-48 **CSS-Z12X/DC5-48V**

Accessories

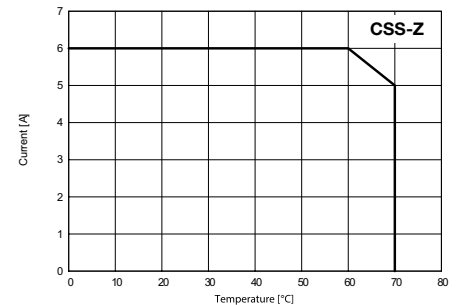
Socket: **S10, S10-M, S10-P**



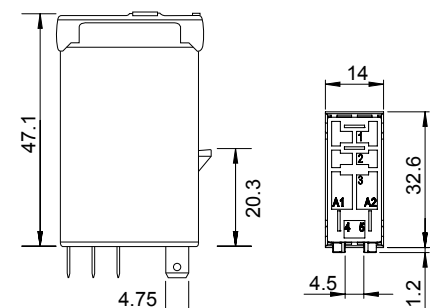
Fig. 1 CSS-Z diagram



Tab. 2 AC derating curve



Dimensions [mm]



Technical approvals, conformities



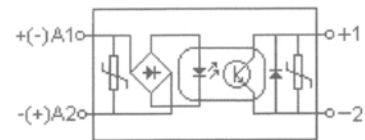
CSS-N

4-pin, Interface solid state relay, 1-pole, plug-in faston

Type	CSS-N NPN solid state relay Terminal commun 2 negative (S10 socket)
Output	1 N/O contact
Operating range	6 A, 5 ... 48 VDC
Minimum contact load	1 mA
Control parameters	
Input voltage range	5 ... 48 VDC
Input current	4 mA
Output	
Type	NPN
Max. output current	6 A
Output voltage range	5 ... 48 VDC
Switch-on current max.	40 A / 10 ms
Max. voltage drop	≤ 0,14 VDC
Residual current	0,1 mA
Specifications	
Ambient temperature operation/storage	-40 ... 70 °C/-40 ... 85 °C
Test voltage between input/output	4 kV rms/1 min.
Turn-on delay	0,06 ms
Release delay	0,06 ms
Weight	28 g



Fig. 1 CSS-N diagram

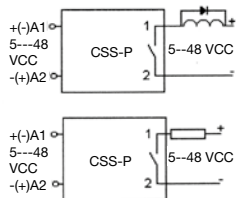


Negative common

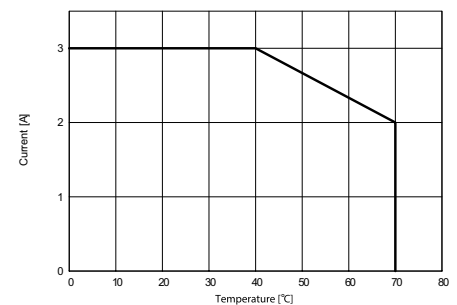
Applications

For switching heating elements, electro valves, motors, PLC input/output signals, solenoids, incandescent and fluorescent lamps, etc. (up to 48 VDC).

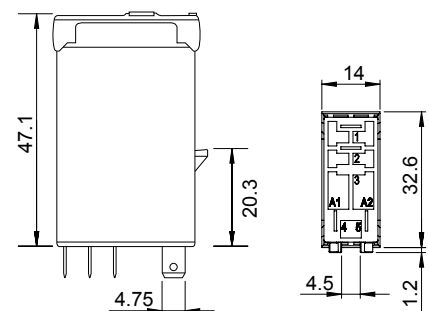
Inductive loads must be shunted with an antiparallel diode.



Tab. 2 DC derating curve



Dimensions [mm]



Standard types

VDC 5-48

CSS-N13X/DC5-48V

Accessories

Socket:

S10, S10-M, S10-P

Technical approvals, conformities

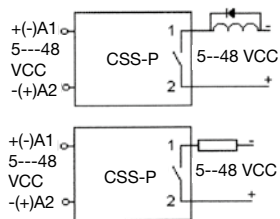


Type	CSS-P PNP solid state relay Terminal commun 2 positive (S10 socket)
Output	1 N/O contact
Operating range	6 A, 5 ... 48 VDC
Minimum contact load	1 mA
Control parameters	
Input voltage range	5 ... 48 VDC
Input current	4 mA
Output	
Type	PNP
Max. output current	6 A
Output voltage range	5 ... 48 VDC
Max. switch-on current	40 A / 10 ms
Max. voltage drop	0,14 VDC
Residual current	0,1 mA
Specifications	
Ambient temperature operation/storage	-40 ... 70 °C / -40 ... 85 °C
Turn-on delay	0,06 ms
Release delay	0,06 ms
Weight	28 g

Applications

For switching heating elements, electro valves, motors, PLC input/output signals, solenoids, incandescent and fluorescent lamps, etc. (up to 48 VDC).

Inductive loads must be shunted with an antiparallel diode.



Standard types

VDC 5-48

CSS-P13X/DC5-48V

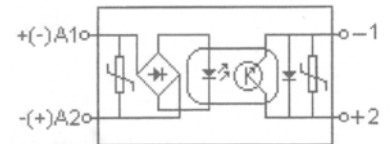
Accessories

Socket:

S10, S10-M, S10-P

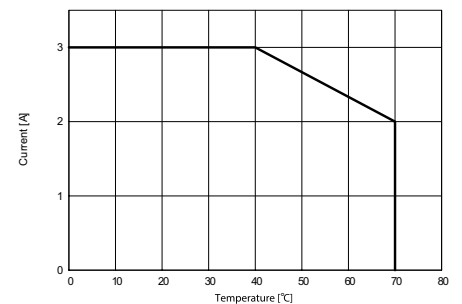


Fig. 1 CSS-P diagram

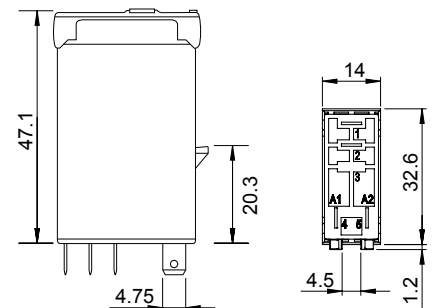


Positive common

Tab. 2 DC derating curve



Dimensions [mm]



Technical approvals, conformities



CRINT 1x5 series

Solid state interface module with mechanical NO output contact

DIN Rail mounting according to DIN 43 880



Types: CRINT-C115, CRINT-C125 / ...V

For PLC's and process control. DC solid state switch, type NO.
For fast and high frequent switching. With screw terminals (CRINT-S11) or cage clamp terminals (CRINT-S12).

Max. contact load	2 A, 24 V DC-1
Contact	
Type	1 NO (Solid state DC)
Material	MOSFET
Switching current _{TH}	2 A 24 V DC
Recommended minimal load	20 mA / 5 V
Peak inrush current	48 A/10 ms
Coil	
Operation voltage AC 50/60 Hz / DC	0.8 ... 1.25 U _N
Nominal power DC/AC	160 / — mW
Insulation	
Test voltage I / O	2.5 kVrms 1 minute
Pollution degree	3
Over voltage category	III
Open contact	1000 Vrms dielectric strength 1 min
Standard	EN61810-5

General Specifications

Ambient temperature: operation / storage	-30 ... +70 °C / -40 ... +85 °C
Typical response time @ V _n	1 ms
Typical release time @ V _n	1 ms
Cond. cross section screw terminal	2.5 mm ²
Cond. cross section spring cage	0.75 ... 2.5 mm ²
Ingress protection	IP 20
Mounting position	any
Housing material	Polyamide PA6

Order information

Screw terminal: CRINT-C115/UC...V	UC12V UC24V UC48V
Cage clamp terminal: CRINT-C125/UC...V	UC60V UC110-125V UC220-240V
„ ... “ enter the voltage for full type designation	

Accessories

Jumper link (5 pcs):	blue: CRINT-BR20-BU/5
	red: CRINT-BR20-RD/5
	black: CRINT-BR20-BK/5

Label plate (64 pcs):	CRINT-LAB/64
Spacer (5 pcs):	CRINT-SEP/5

Replacement relays:	DC12V
CRINT-R15/DC...V	DC24V
„ ... “ enter the voltage for full type designation	DC48V
	DC60V*

*60V Relay used for all sockets with a nominal voltage higher or equal 60V



Connection diagram

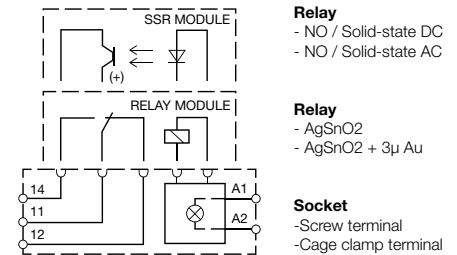


Fig.1 AC voltage endurance

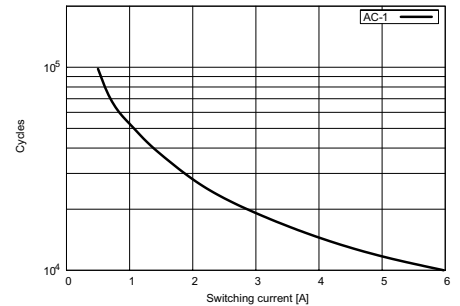
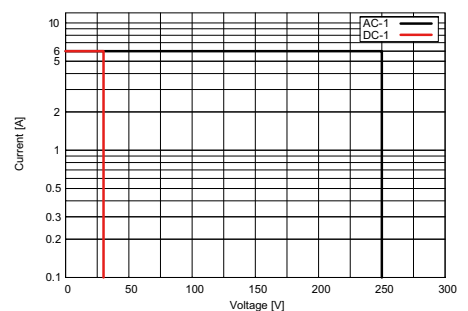
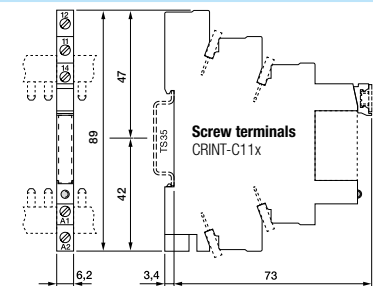


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities



CRINT 1x8 series

Solid state interface module with mechanical NO output contact

DIN Rail mounting according to DIN 43 880

Types: CRINT-C118, CRINT-C128 / ...V

For PLC's and process control.

AC output interface zero synchronous switching NO for resistive or similar load. (No transformer rec.) With screw terminals (CRINT-S11) or cage clamp terminals (CRINT-S12).

Max. contact load	1 A, 240 V AC-1
Contact	
Type	1 NO (Solid state AC)
Material	TRIAC
Switching current _{TH}	1 A 240 V AC
Recommended minimal load	22 mA / 12 V
Peak inrush current	80 A/10 ms
Coil	
Operation voltage AC 50/60 Hz / DC	0.8 ... 1.25 U _N
Nominal power DC/AC	150 / — mW
Insulation	
Test voltage I / O	2.5 kVrms 1 minute
Pollution degree	3
Over voltage category	III
Open contact	1000 Vrms dielectric strength 1 min
Standard	EN61810-5
General Specifications	
Ambient temperature: operation / storage	-30 ... +70 °C / -40 ... +85 °C
Typical response time @ V _n	1 ms
Typical release time @ V _n	1 ms
Cond. cross section screw terminal	2.5 mm ²
Cond. cross section spring cage	0.75 ... 2.5 mm ²
Ingress protection	IP 20
Mounting position	any
Housing material	Polyamide PA6

Order information

Screw terminal: **CRINT-C118/UC...V**

- UC12V**
- UC24V**
- UC48V**
- UC60V**
- UC110-125V**
- UC220-240V**

Cage clamp terminal: **CRINT-C128/UC...V**

„ ...“ enter the voltage for full type designation

Accessories

Jumper link (5 pcs):
 blue: **CRINT-BR20-BU/5**
 red: **CRINT-BR20-RD/5**
 black: **CRINT-BR20-BK/5**

Label plate (64 pcs): **CRINT-LAB/64**
 Spacer (5 pcs): **CRINT-SEP/5**

Replacement relays:
CRINT-R18/DC...V
 „ ...“ enter the voltage for full type designation
DC12V
DC24V
DC60V*

*60V Relay used for all sockets with a nominal voltage higher or equal 60V



Connection diagram

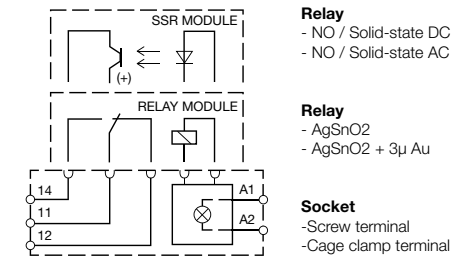


Fig.1 AC voltage endurance

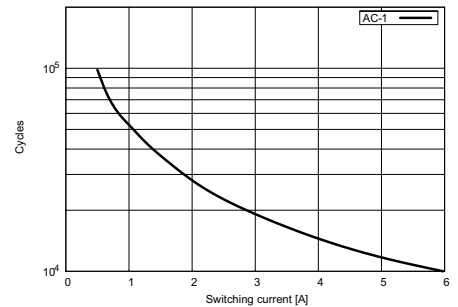
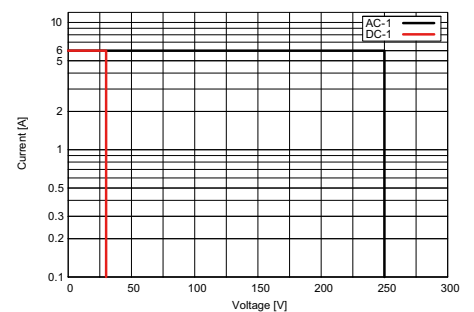
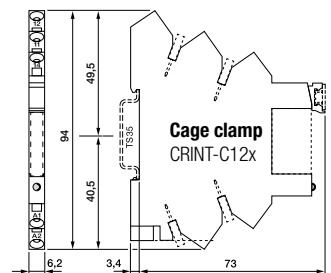


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities

