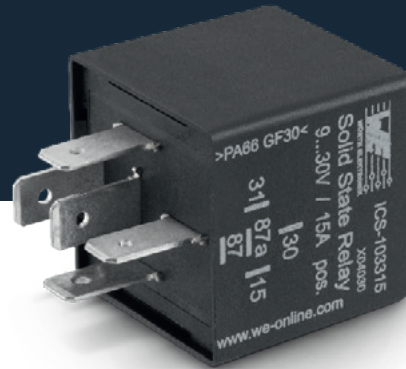


# SOLID STATE RELAYS

Special Relays



**Solid State Relays** can be used to switch lamps or resistive loads. In terms of size and pin arrangement, the Solid State Relays are compatible with conventional ISO mini relays. They are maintenance- and wear-free and have a low power consumption. The Solid State Relays are also short-circuit-proof, overload-proof and protected against overtemperature. Compared to a fuse, the Solid State Relays switch faster in the case of a short-circuit. However, they are not suitable for protecting a supply path by themselves and must be pre-fused in advance with a suitable fuse. Solid State Relays provide feedback on the current flowing through the device. This feature allows a diagnosis by a main controller.

### Advantages of Solid State Relays:

- Avoiding
  - Contact bounce
  - Moving parts
  - Mechanical wear on the switching contact
  - Switching noise
- Direct control by driver logic
- Low power consumption
- Wide operating voltage range
- High shock and vibration protection
- Generating no magnetic fields or electrical interference

### Technical Data

General information	
Housing	ISO Mini Relay
Connector	5 Pins DIN
Dimensions	30 x 30 x 30 mm
Weight	~45 g (5 / 15 / 25 A)
Operating temperature	-40 °C to 80 °C
Storage temperature	-40 °C to 80 °C
Ingress protection	IP53
EMC	E1
Input voltage	9 to 32 V DC
Output current	5, 15 or 25 A (see below)
Quiescent current	< 20 µA
Reverse polarity protection	Yes

### Input details

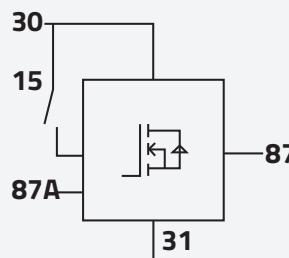
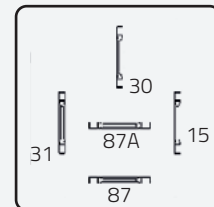
Input	Positive	Negative
Turn-on threshold	3.9 V	0 V
Turn-off threshold	3.7 V	Operating voltage

### Wiring diagram

Front view



Bottom view



### Pin assignment

Pin	Description	Function
30	Vcc	9 to 32 V DC power supply
31	GND	Ground
15	Gate	MOSFET gate (positive or negative)
87	Output	MOSFET source
87A	Sense	MOSFET current sense

# SOLID STATE RELAYS

## Special Relays

### Current sense reference values

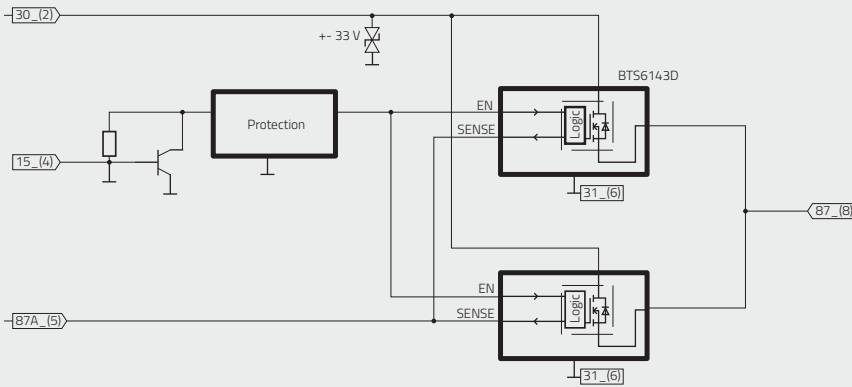
Current sense proportional to the load on pin 87 is available on 25 A, 15 A and 5 A variants on pin 87 A.

Current sense output 25 A variant, measured at RT=20 °C		
Load current [A]	Supply voltage	
	8 V	12-32 V
1	0.08	0.1
5	0.4	0.7
10	0.9	1.5
15	1.8	2.3
20	2.8	3
25	3.5	3.8

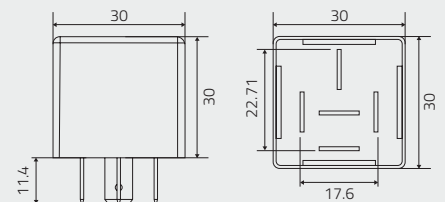
Current sense output 15 A variant, measured at RT=20 °C		
Load current [A]	Supply voltage	
	8 V	12-32 V
1	0.2	0.3
5	1.2	1.3
10	2.4	2.6
15	3.9	4.2

Current sense output 5 A variant, measured at RT=20 °C		
Load current [A]	Supply voltage	
	8 V	12-32 V
0.5	0.3	0.3
1	0.7	0.7
1.5	1	1.1
2	1.3	1.5
2.5	1.8	1.8
3	2.2	2.2
3.5	2.6	2.7
4	2.9	3
4.5	3.3	3.4
5	3.6	3.9

### Block function diagram



### Dimensions



### Order information

Available references	Part number
Solid State Relay – 5 A – positive input	ICS-103313
Solid State Relay – 5 A – negative input	ICS-103314
Solid State Relay – 15 A – positive input	ICS-103315
Solid State Relay – 15 A – negative input	ICS-103316
Solid State Relay – 25 A – positive input	ICS-103317
Solid State Relay – 25 A – negative input	ICS-103318

This item is a standard product, please consider the relevant datasheet notes. The user is responsible for the product's functionality in its purposed system environment. Technical content may be modified and changed by Würth Elektronik ICS GmbH & Co. KG without any notice.

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