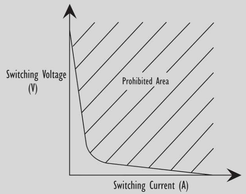
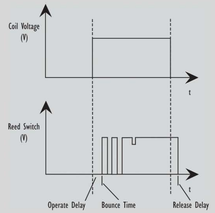
Switch Voltage, Switching Current and Power Rating

The listed Values for switching voltage, switching current, and power rating are absolute limits. If any of these values is exceeded, a reduction of life expectancy will result (see following power diagram).



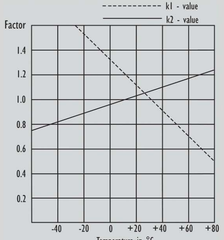
Switching Time

This is defined as, the pull-in time including the bounce time at nominal voltage and 20 Hz: 1.5 - 3.5ms, and the release time (without diode) at nominal voltage and 20 Hz: 0.4 - 1.5ms.



Operating Temperature

The operating temperature is the internal temperature of the relay (ambient temperature plus self heating). If relays are operating at higher ambient temperatures than +20°C, the pull-in voltage and the maximum coil voltage must be calculated as follows:
Pull-in voltage = Pull-in voltage at 20°C x k1.
Maximum coil voltage = Max. coil voltage 20°C x k2.
When mounting relays side by side, a gap of approximately half the relay width is recommended to avoid magnetic interference from one relay to another.



HOW TO ORDER HIGH VOLTAGE RELAYS

3392	-	1270	-	12	-	6
Contact Code		Termination Style		Coil Voltage		Version Number

Note: All parts of the order code must be completed

All dimensions are nominal, in millimetres unless otherwise stated. If further information is required, individual datasheets are available on our websites, and on CD.
As part of the groups policy of continued product improvement, specifications may change without notice. Our sales office will be pleased to help you with the latest information on our products.

The Comus International group of companies consists of:

Comus International
454 Allwood Road
Clifton
New Jersey 07012
U.S.A

Tel: (1)973 - 777 - 6900
Fax:(1)973 - 777 - 8405
email: info@comus-intl.com
internet: http://www.comus-intl.com

Assemtech Europe Limited
Unit 7, Rice Bridge Industrial Estate
Thorpe - Le - Soken
Essex
England
CO16 0HL
Tel: +44 (0)1255 862236
Fax: +44 (0)1255 862014
email: sales@assemtech.co.uk
internet: http://www.assemtech.co.uk

Comus Belgium BVBA
Overhaamlaan 40
B-3700 Tongeren
Belgium

Tel: +32 (0)12 390400
Fax: +32 (0)12 235754
email: info@comus.be
internet: http://www.comus.be

Comus International SARL
Immeuble 'Les Juilliottes
31 Cours des Juilliottes
F-94700 Maisons-Alfort
France

Tel: +33 (0)1 43 96 86 10
Fax: +33 (0)1 43 96 86 11
email: info@comus.fr
internet: http://www.comus.fr

Switching Technologies Gunther
B-9, B-10, & C-1 Special Economic Zone (MEPZ)
Kadapperi
Tambaram
Chennai 600 045
India
Tel: +91 44 22628093
Fax: +91 44 22628271
email: stgltd@eth.net

Comus Electronics India
No 74A Anbu Street
Gandhi Nagar
Ekkattuthangal
Chennai 600 097
TamilNadu
India
Tel: +91 44 22628198
Fax: +91 44 22628271
email: chitra@comus-intl.com
internet: http://www.comusindia.com

We also have a large network of worldwide agents. These can be seen on any of our websites, or on our company profile brochure.

Com/4/Oct05/Iss.1

High Voltage Reed Relays

DESCRIPTION

Reed Relays consist of a reed switch and a coil fitted into a housing, which could be plastic, metal, or moulded. Compared with electromechanical relays, reed relays generally have a faster response time, lower coil consumption, and are smaller in size. Furthermore, the switch is sealed in a dry, inert atmosphere, preventing the ingress of contaminants.

OPERATION

High Voltage Relays have outstanding performance in insulation and stand-off voltage. Energising the coil operates a reed switch causing the contacts to open or close. It is important that the switch is not overloaded by applying loads in excess of the switch ratings. For details on switch loads refer to the reed relay specifications, and the reed switch catalogue, available from our sales offices.

General Parameters

All characteristics for pull-in voltage, drop-out voltage, and coil resistance are at 20°C ±3°C ambient temperature. For other temperatures see diagram 'Operating Temperature.'

Contact Resistance

Initial value at nominal voltage is measured by Kelvin test method at 20V / 100mA.

Soldering

During Soldering make sure no mechanical stress is applied to the terminals because damage to the internal reed switch may occur.

Insulation Resistance

The insulation resistance is measured with a Tera Ohmmeter at 500VDC. The ambient climate is 20°C ±3°C and 50% relative humidity.

Dielectric Strength

Tested in a radiation (eg. light, x-ray) free environment by applying a DC voltage across the open contacts, between adjacent contacts and between the coil and contact. The test current is 50µA. The unused contacts should not be connected during the test.

Shock and Vibration

During shock and vibration tests the relays must be energized with nominal voltage. The contact should not open or close longer than 10µS.
Vibration stability: 20g/50 - 500Hz.
Shock stability: 35g/11ms half sine wave.

Life Expectancy:

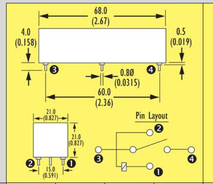
The life expectancy of a reed relay is dependent upon the load being switched. At maximum rated loads life expectancy is approximately 10^8 switching cycles. Lower load ratings can increase the life expectancy up to $5x10^8$ operations. The mechanical life expectancy can reach at least 10^9 operations. Through the switching of inductive, capacitive, and lamp loads, the life expectancy is considerably reduced due to exceeding the specified maximum current.

Contact Capacitance (Typical Values)

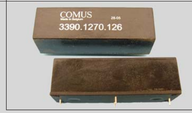
Across open contacts	0.8 - 1.2 pF
Between open contact and coil	1.4 - 2.2 pF
Between closed contacts and coil	2.3 - 3.5 pF

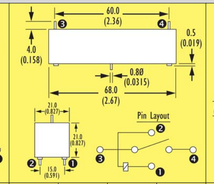
All dimensions are nominal, in millimetres unless otherwise stated. If further information is required, individual datasheets are available on our websites, and on CD.
As part of the groups policy of continued product improvement, specifications may change without notice. Our sales office will be pleased to help you with the latest information on our products.

HIGH VOLTAGE REED RELAYS

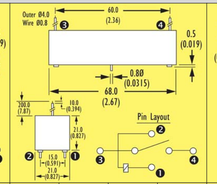


Version Number	6	6	6	6
Contact Form	1 Normally Open			
Contact Code	3316	3390	3391	3392
Termination Style	1270			
Contact Parameters				
Switching Voltage max. VAC peak/VDC	1500	5000	7500	10000
Dielectric Strength min. VDC	3000	7000	10000	14000
Switching Capacity max. W	30	50	50	50
Switching Current max. A	1	2	2	2
Carrying Current max. A	2	3	3	3
Contact Resistance max. mOhms	80	250	250	250
Coil Parameters (Options)				
Nominal Coil Voltage VDC	5	12	24	
Pull-in Voltage max. VDC	4	10	20	
Drop-out Voltage min. VDC	1	2	4	
Operating Voltage max. VDC	8	18	36	
Coil Resistance +15%. Ohms	35	200	720	
Relay Parameters				
Dielectric Strength coil/contact VDC	20000			
Dielectric Strength contact/contact VDC	-			
Insulation Resistance coil/contact Ohms	$1x10^9$			
Storage Temperature °C	-35 +90			
Operating Temperature °C	-20 +70			
Pull-in Time incl. Bounce Time ms	3.5			
Drop-out Time ms	1.5			
Weight, approx. g	55			

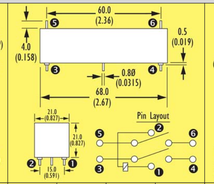




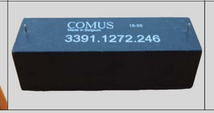
Version Number	6	6	6	6
Contact Form	1 Normally Open			
Contact Code	3316	3390	3391	3392
Termination Style	1280			
Contact Parameters				
Switching Voltage max. VAC peak/VDC	1500	5000	7500	10000
Dielectric Strength min. VDC	3000	7000	10000	14000
Switching Capacity max. W	30	50	50	50
Switching Current max. A	1	2	2	2
Carrying Current max. A	2	3	3	3
Contact Resistance max. mOhms	80	250	250	250
Coil Parameters (Options)				
Nominal Coil Voltage VDC	5	12	24	
Pull-in Voltage max. VDC	4	10	20	
Drop-out Voltage min. VDC	1	2	4	
Operating Voltage max. VDC	8	18	36	
Coil Resistance +15%. Ohms	35	200	720	
Relay Parameters				
Dielectric Strength coil/contact VDC	20000			
Dielectric Strength contact/contact VDC	-			
Insulation Resistance coil/contact Ohms	$1x10^9$			
Storage Temperature °C	-35 +90			
Operating Temperature °C	-20 +70			
Pull-in Time incl. Bounce Time ms	3.5			
Drop-out Time ms	1.5			
Weight, approx. g	55			

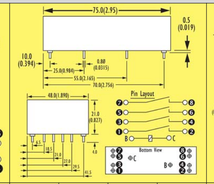


Version Number	6	6	6	6
Contact Form	1 Normally Open			
Contact Code	3316	3390	3391	3392
Termination Style	1290			
Contact Parameters				
Switching Voltage max. VAC peak/VDC	1500	5000	7500	10000
Dielectric Strength min. VDC	3000	7000	10000	14000
Switching Capacity max. W	30	50	50	50
Switching Current max. A	1	2	2	2
Carrying Current max. A	2	3	3	3
Contact Resistance max. mOhms	80	250	250	250
Coil Parameters (Options)				
Nominal Coil Voltage VDC	5	12	24	
Pull-in Voltage max. VDC	4	10	20	
Drop-out Voltage min. VDC	1	2	4	
Operating Voltage max. VDC	8	18	36	
Coil Resistance +15%. Ohms	35	200	720	
Relay Parameters				
Dielectric Strength coil/contact VDC	20000			
Dielectric Strength contact/contact VDC	-			
Insulation Resistance coil/contact Ohms	$1x10^9$			
Storage Temperature °C	-35 +90			
Operating Temperature °C	-20 +70			
Pull-in Time incl. Bounce Time ms	3.5			
Drop-out Time ms	1.5			
Weight, approx. g	55			

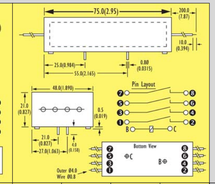


Version Number	6	6	6	6
Contact Form	2 Normally Open			
Contact Code	3316	3390	3391	3392
Termination Style	1272			
Contact Parameters				
Switching Voltage max. VAC peak/VDC	1500	5000	7500	10000
Dielectric Strength min. VDC	3000	7000	10000	14000
Switching Capacity max. W	30	50	50	50
Switching Current max. A	1	2	2	2
Carrying Current max. A	2	3	3	3
Contact Resistance max. mOhms	80	250	250	250
Coil Parameters (Options)				
Nominal Coil Voltage VDC	5	12	24	
Pull-in Voltage max. VDC	4	10	20	
Drop-out Voltage min. VDC	0.5	1.2	2.4	
Operating Voltage max. VDC	7	16	29	
Coil Resistance +15%. Ohms	15	85	275	
Relay Parameters				
Dielectric Strength coil/contact VDC	10000			
Dielectric Strength contact/contact VDC	10000			
Insulation Resistance coil/contact Ohms	$1x10^9$			
Storage Temperature °C	-35 +90			
Operating Temperature °C	-20 +70			
Pull-in Time incl. Bounce Time ms	3.5			
Drop-out Time ms	1.5			
Weight, approx. g	55			





Version Number	6	6	6	6
Contact Form	4 Normally Open			
Contact Code	3316	3390	3391	3392
Termination Style	1274			
Contact Parameters				
Switching Voltage max. VAC peak/VDC	1500	5000	7500	10000
Dielectric Strength min. VDC	3000	7000	10000	14000
Switching Capacity max. W	30	50	50	50
Switching Current max. A	1	2	2	2
Carrying Current max. A	2	3	3	3
Contact Resistance max. mOhms	80	250	250	250
Coil Parameters (Options)				
Nominal Coil Voltage VDC	5	12	24	
Pull-in Voltage max. VDC	4	10	20	
Drop-out Voltage min. VDC	0.5	1	2	
Operating Voltage max. VDC	7	14.5	27	
Coil Resistance +15%. Ohms	12	42	175	
Relay Parameters				
Dielectric Strength coil/contact VDC	10000			
Dielectric Strength contact/contact VDC	8000			
Insulation Resistance coil/contact Ohms	$1x10^9$			
Storage Temperature °C	-35 +90			
Operating Temperature °C	-20 +70			
Pull-in Time incl. Bounce Time ms	3.5			
Drop-out Time ms	1.5			
Weight, approx. g	130			



Version Number	6	6	6	6
Contact Form	4 Normally Open			
Contact Code	3316	3390	3391	3392
Termination Style	1294			
Contact Parameters				
Switching Voltage max. VAC peak/VDC	1500	5000	7500	10000
Dielectric Strength min. VDC	3000	7000	10000	14000
Switching Capacity max. W	30	50	50	50
Switching Current max. A	1	2	2	2
Carrying Current max. A	2	3	3	3
Contact Resistance max. mOhms	80	250	250	250
Coil Parameters (Options)				
Nominal Coil Voltage VDC	5	12	24	
Pull-in Voltage max. VDC	4	10	20	
Drop-out Voltage min. VDC	0.5	1	2	
Operating Voltage max. VDC	7	14.5	27	
Coil Resistance +15%. Ohms	12	42	175	
Relay Parameters				
Dielectric Strength coil/contact VDC	10000			
Dielectric Strength contact/contact VDC	8000			
Insulation Resistance coil/contact Ohms	$1x10^9$			
Storage Temperature °C	-35 +90			
Operating Temperature °C	-20 +70			
Pull-in Time incl. Bounce Time ms	3.5			
Drop-out Time ms	1.5			
Weight, approx. g	130			

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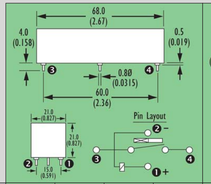
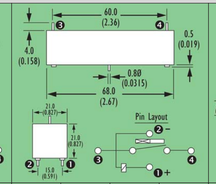
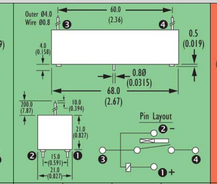


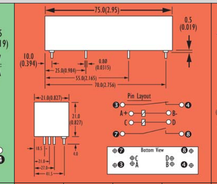
Version Number	6	6	6	6
Contact Form	1 Normally Closed			
Contact Code	3316	3390	3391	3392
Termination Style	4270			
Contact Parameters				
Switching Voltage max. VAC peak/VDC	1500	5000	7500	10000
Dielectric Strength min. VDC	3000	7000	10000	14000
Switching Capacity max. W	30	50	50	50
Switching Current max. A	1	2	2	3
Carrying Current max. A	2	3	3	5
Contact Resistance max. mOhms	80	250	250	250
Coil Parameters (Options)				
Nominal Coil Voltage VDC	5	12	24	
Pull-in Voltage max. VDC	4	10	20	
Drop-out Voltage min. VDC	0.5	1	2	
Operating Voltage max. VDC	6.5	14.5	27	
Coil Resistance +15%. Ohms	50	400	675	
Relay Parameters				
Dielectric Strength coil/contact VDC	20000			
Dielectric Strength contact/contact VDC	-			
Insulation Resistance coil/contact Ohms	$1x10^9$			
Storage Temperature °C	-35 +90			
Operating Temperature °C	-20 +70			
Pull-in Time incl. Bounce Time ms	3.5			
Drop-out Time ms	1.5			
Weight, approx. g	55			



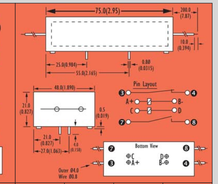
Version Number	6	6	6	6
Contact Form	1 Normally Closed			
Contact Code	3316	3390	3391	3392
Termination Style	4280			
Contact Parameters				
Switching Voltage max. VAC peak/VDC	1500	5000	7500	10000
Dielectric Strength min. VDC	3000	7000	10000	14000
Switching Capacity max. W	30	50	50	50
Switching Current max. A	1	2	2	2
Carrying Current max. A	2	3	3	3
Contact Resistance max. mOhms	80	250	250	250
Coil Parameters (Options)				
Nominal Coil Voltage VDC	5	12	24	
Pull-in Voltage max. VDC	4	10	20	
Drop-out Voltage min. VDC	0.5	1	2	
Operating Voltage max. VDC	6.5	14.5	27	
Coil Resistance +15%. Ohms	50	400	675	
Relay Parameters				
Dielectric Strength coil/contact VDC	20000			
Dielectric Strength contact/contact VDC	-			
Insulation Resistance coil/contact Ohms	$1x10^9$			
Storage Temperature °C	-35 +90			
Operating Temperature °C	-20 +70			
Pull-in Time incl. Bounce Time ms	3.5			
Drop-out Time ms	1.5			
Weight, approx. g	55			



Version Number	6	6	6	6
Contact Form	1 Normally Closed			
Contact Code	3316	3390	3391	3392
Termination Style	4290			
Contact Parameters				
Switching Voltage max. VAC peak/VDC	1500	5000	7500	10000
Dielectric Strength min. VDC	3000	7000	10000	14000
Switching Capacity max. W	30	50	50	50
Switching Current max. A	1	2	2	2
Carrying Current max. A	2	3	3	3
Contact Resistance max. mOhms	80	250	250	250
Coil Parameters (Options)				
Nominal Coil Voltage VDC	5	12	24	
Pull-in Voltage max. VDC	4	10	20	
Drop-out Voltage min. VDC	0.5	1	2	
Operating Voltage max. VDC	6.5	14.5	27	
Coil Resistance +15%. Ohms	50	400	675	
Relay Parameters				
Dielectric Strength coil/contact VDC	20000			
Dielectric Strength contact/contact VDC	-			
Insulation Resistance coil/contact Ohms	$1x10^9$			
Storage Temperature °C	-35 +90			
Operating Temperature °C	-20 +70			
Pull-in Time incl. Bounce Time ms	3.5			
Drop-out Time ms	1.5			
Weight, approx. g	55			



Version Number	6	6	6	6
Contact Form	1 Normally Open & 1 Normally Closed			
Contact Code	3316	3390	3391	3392
Termination Style	5272			
Contact Parameters				
Switching Voltage max. VAC peak/VDC	1500	5000	7500	10000
Dielectric Strength min. VDC	3000	7000	10000	14000
Switching Capacity max. W	30	50	50	50
Switching Current max. A	1	2	2	2
Carrying Current max. A	2	3	3	3
Contact Resistance max. mOhms	80	250	250	250
Coil Parameters (Options)				
Nominal Coil Voltage VDC	5	12	24	
Pull-in Voltage max. VDC	4	10	20	
Drop-out Voltage min. VDC	0.5	1	2	
Operating Voltage max. VDC	7.5	14.5	27	
Coil Resistance +15%. Ohms	27	135	345	
Relay Parameters				
Dielectric Strength coil/contact VDC	10000			
Dielectric Strength contact/contact VDC	8000			
Insulation Resistance coil/contact Ohms	$1x10^9$			
Storage Temperature °C	-35 +90			
Operating Temperature °C	-20 +70			
Pull-in Time incl. Bounce Time ms	3.5			
Drop-out Time ms	1.5			
Weight, approx. g	130			



Version Number	6	6	6	6
Contact Form	1 Normally Open & 1 Normally Closed			
Contact Code	3316	3390	3391	3392
Termination Style	5292			
Contact Parameters				
Switching Voltage max. VAC peak/VDC	1500	5000	7500	10000
Dielectric Strength min. VDC	3000	7000	10000	14000
Switching Capacity max. W	30	50	50	50
Switching Current max. A	1	2	2	2
Carrying Current max. A	2	3	3	3
Contact Resistance max. mOhms	80	250	250	250
Coil Parameters (Options)				
Nominal Coil Voltage VDC	5	12	24	
Pull-in Voltage max. VDC	4	10	20	
Drop-out Voltage min. VDC	0.5	1	2	
Operating Voltage max. VDC	7	14.5	27	
Coil Resistance +15%. Ohms	27	135	345	
Relay Parameters				
Dielectric Strength coil/contact VDC	10000			
Dielectric Strength contact/contact VDC	8000			
Insulation Resistance coil/contact Ohms	$1x10^9$			
Storage Temperature °C	-35 +90			
Operating Temperature °C	-20 +70			
Pull-in Time incl. Bounce Time ms	3.5			
Drop-out Time ms	1.5			
Weight, approx. g	130			