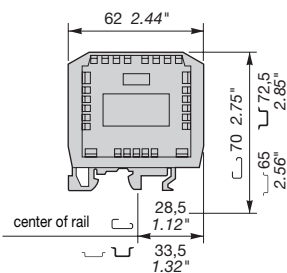


# Relay Interfaces

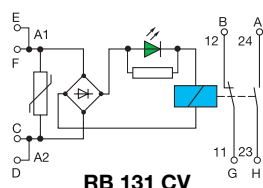
## R1800 relay modules



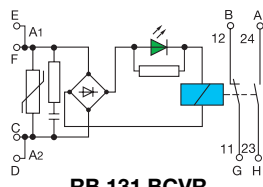
DIN 1-3



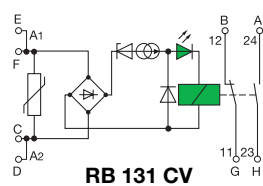
Relay blocks R1800



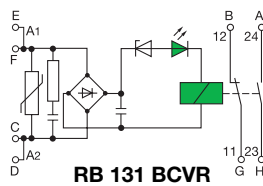
RB 131 CV



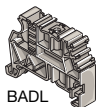
RB 131 BCVR



RB 131 CV



RB 131 BCVR



BADL



BAM



RLV

- Relay : 1 NO and 1 NC high level contacts 10 mA up to 5 A - 18 mm .709" spacing
- Relay : 1 NO and 1 NC very low level contacts 10<sup>-6</sup> mA up to 5 A - 18 mm .709" spacing

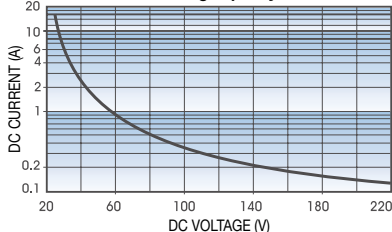
### Characteristics

Relay characteristics	RB 131 CV		RB 131 BCVR	RB 131 CV		RB 131 BCVR
	COIL	CONTACT	CONTACT	COIL	CONTACT	CONTACT
Rated voltage +20%, -15% on DC +10%, -15% on AC	24 V DC	48 V DC	110 V AC	24 V DC	48 V DC	110 V AC
Frequency			50/60 Hz			50/60 Hz
Power	0.6 W	0.7 W	1.9 VA	0.8 W	1.2 W	4.4 VA
Rated current	25 mA	14 mA	17 mA	34 mA	24 mA	40 mA
Drop-out voltage at 20°C	2.4 V DC	4.8 V DC	11 V AC	5 V DC	12 V DC	20 V AC
Permissible leakage current	1 mA	2 mA	2 mA	1 mA	2.2 mA	
Status device	green Led			green Led		
<b>CONTACT</b>						
Type	1 NO + 1 NC			1 NO + 1 NC		
Voltage switching range min./max.	12 V / 250 V			10 <sup>-3</sup> V / 250 V		
Current switching range min./max.	10 mA / 5 A			10 <sup>-6</sup> mA / 5 A		
Load switching range						
AC1 min. / max.	0.6 VA / 1250 VA			10 <sup>-6</sup> VA / 1250 VA		
DC1 min. / max.	0.6 W / see curve 1 hereunder			10 <sup>-6</sup> W / see curve 2 hereunder		
Number of on-load operations	2 x 10 <sup>5</sup> resistive			2 x 10 <sup>5</sup> resistive		
Number of off-load operations	2 x 10 <sup>7</sup>			10 <sup>7</sup>		
Operating speed	7 ms			8 ms		
Bounce	4 ms			1 ms		
Insulation coil / contact	2500 V RMS					
Resistance to shock coil / contact	≥ 1000 V RMS					
Insulation contact / contact	-40°C à +80°C					
Ambient temperature storage operating	see derating curves					

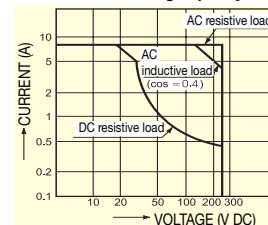
### Other characteristics

Body material	grey	UL 94 V2
Wire	Solid wire	0 - 4 mm <sup>2</sup> / 20 - 12 AWG
size	Stranded wire	0 - 2.5 mm <sup>2</sup> / 20 - 12 AWG
Rated wire size		2.5 mm <sup>2</sup> / 12 AWG
Wire stripping length		7 mm .276"
Recommended screwdriver		3.5 mm .137"
Protection		IP20 NEMA1
Recommended torque		0.4 - 0.6 Nm 3.5 - 5.3 lb.in
Approvals		CE
Reference standards	CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (parts) / CEI 60664-1 / CEM : IRC 1000-4-2, 3, 4, 5, 6	

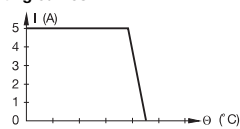
Max. DC load breaking capacity : curve 1



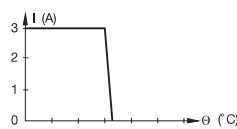
Max. DC load breaking capacity : curve 2



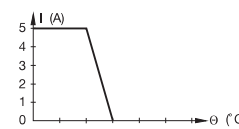
### Derating curves



RB 131 CV  
RB 131 BCVR



RB 131 CV  
Very low level



RB 131 BCVR  
Very low level

### Order codes

Description	Type	Order P/N	Packaging Weight kg
Relay module 1 NO + 1 NC high level	RB 131 CV 24 V DC	1SNA 010 181 R1700	1
Relay module 1 NO + 1 NC high level	RB 131 CV 48 V DC	1SNA 010 182 R1000	1
Relay module 1 NO + 1 NC high level	RB 131 BCVR 110 V AC	1SNA 010 183 R1100	1
Relay module 1 NO + 1 NC very low level	RB 131 CV 24 V DC	1SNA 010 151 R2000	1
Relay module 1 NO + 1 NC very low level	RB 131 CV 48 V DC	1SNA 010 152 R2100	1
Relay module 1 NO + 1 NC very low level	RB 131 BCVR 110 V AC	1SNA 010 153 R2200	1

### Accessories

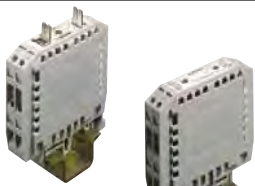
End section	BADL V0	1SNA 399 903 R0200	50
	BAM	1SNA 103 002 R2600	50
	BAM V0	1SNA 399 306 R0300	50
Lengthwise marker	RLV	1SNA 103 849 R0300	100
Marker	RC55	see markers	

# Relay Interfaces

## R1800 relay modules



DIN 1-3



RB 114 A



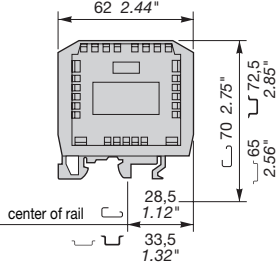
RB 211



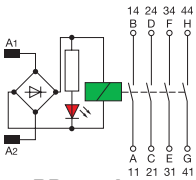
RB 310



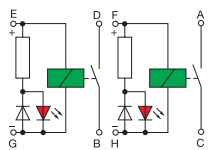
RB 131



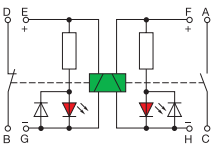
### Relay blocks R1800



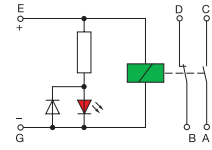
RB 114 A



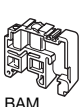
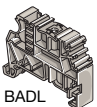
RB 211



RB 310



RB 131



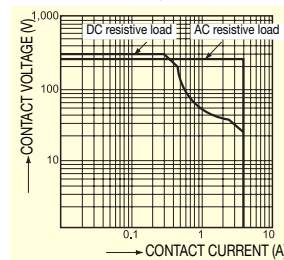
- Relay : 4 NO very low level contacts  $10^{-7}$  A to 4 A - 18 mm .709" spacing
- 2 relays : 1 NO very low level contacts  $10^{-6}$  A to 5 A - 18 mm .709" spacing
- Latching relay : very low level contacts  $10^{-6}$  A to 8 A - 18 mm .709" spacing
- Relay : 1 NO and 1 NC very low level contacts  $10^{-6}$  A to 8 A - 18 mm .709" spacing

### Characteristics

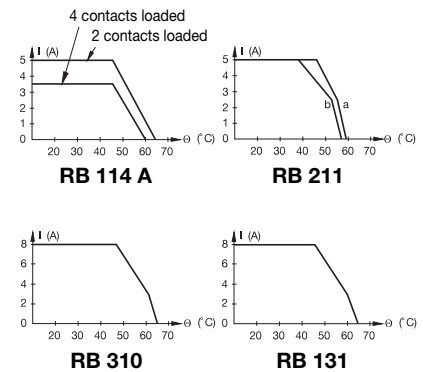
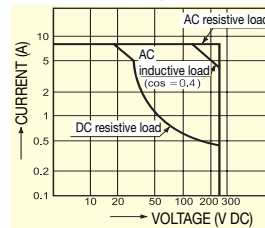
Relay characteristics	RB 114 A	RB 211	RB 310	RB 131
<b>COIL</b>				
Rated voltage +20%, -15% on DC +10%, -15% on AC	24 V AC/DC	48 V AC/DC	24 V DC	24 V DC
Frequency	50/60 Hz	50/60 Hz		
Power	0.6 W / 0.7 VA	0.8 W / 0.9 VA	2 x 0.36 W	0.36 W
Rated current	26 mA	17 mA	15 mA	15 mA
Drop-out voltage	2.7 V AC/DC	4 V AC/DC	2.4 V DC	
Permissible leakage current				2.4 V DC
Status device	Red Led	Red Led	Red Led	
<b>CONTACT</b>				
Type	4 NO	1 NO + 1 NO	1 NO + 1NC	
Voltage switching range min./max.	$10^3$ V / 250 V	$10^3$ V / 250 V	$10^3$ V / 250 V	
Current switching range min./max.	$10^{-7}$ A / 4 A	$10^{-6}$ A / 5 A	$10^{-6}$ A / 8 A	
Load switching range				
AC1 min. / max.	$10^{-10}$ VA / 1000 VA	$10^{-6}$ VA / 1250 VA	$10^{-6}$ VA / 2000 VA	
DC1 min. / max.	$10^{-10}$ W / see curve 1 hereunder	$10^{-6}$ W / see curve 2	$10^{-6}$ W / see curve 2 hereunder	
Number of on-load operations	$2 \times 10^5$ resistive	$2 \times 10^5$ resistive	$2 \times 10^5$ resistive	
Number of off-load operations	$10^6$	$10^7$	$10^7$	
Operating speed	F 8 ms O 3 ms	8 ms 4 ms	8 ms 4 ms	
Bounce	0.5 ms	1 ms	1 ms	
Insulation coil / contact	1500 V RMS	2500 V RMS	2500 V RMS	
Resistance to shock coil / contact				
Insulation contact / contact	750 V RMS	1500 V RMS	1500 V RMS	
Ambient temperature storage operating		-40°C to +80°C see derating curves		
<b>Other characteristics</b>				
Body material	grey	UL 94 V2		
Wire	Solid wire	0 - 4 mm <sup>2</sup> / 20 - 12 AWG		
size	Stranded wire	0 - 2.5 mm <sup>2</sup> / 20 - 12 AWG		
Rated wire size		2.5 mm <sup>2</sup> / 12 AWG		
Wire stripping length		7 mm .276"		
Recommended screwdriver		3.5 mm .137"		
Protection		IP20 NEMA1		
Recommended torque		0.4 - 0.6 Nm 3.5 - 5.3 lb.in		
Approvals	CE	CE	CE	CE
Reference standards	CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (parts) / CEI 60664-1 / CEM : IRC 1000-4-2, 3, 4, 5, 6			

### Derating curves

### Max. DC load breaking capacity :



### Max. DC load breaking capacity :



### Order codes

Description	Type	Order P/N	Packaging Weight kg
<span style="color: green;">■</span> Relay module 4 NO very low level	RB 114 A 24 V AC/DC	1SNA 010 126 R1700	1
<span style="color: green;">■</span> Relay module 4 NO very low level	RB 114 A 48 V AC/DC	1SNA 010 127 R1000	1
<span style="color: green;">■</span> 2 relay module 1 NO very low level	RB 211 24 V DC	1SNA 010 014 R1200	1
<span style="color: green;">■</span> Latching relay module very low level	RB 310 24 V DC	1SNA 010 063 R2300	1
<span style="color: green;">■</span> Latching relay module very low level	RB 310 48 V DC	1SNA 010 064 R2400	1
<span style="color: green;">■</span> Relay module 1 NO + 1 NC very low level	RB 131 24 V DC	1SNA 010 055 R2300	1

### Accessories

End section	Type	Order P/N	Weight kg
BADL	BADL V0	1SNA 399 903 R0200	50
BAM	BAM	1SNA 103 002 R2600	50
BAM V0	BAM V0	1SNA 399 306 R0300	50
Lengthwise marker	RLV	1SNA 103 849 R0300	100
Marker	RC55	see markers	

# Relay Interfaces

## R1800 relay modules

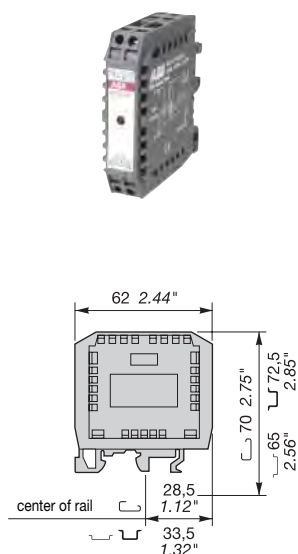


DIN 1-3

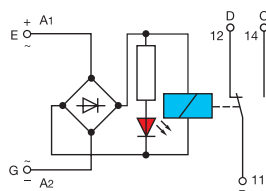
Relay : 1 SPDT high level contacts 10 mA to 8 A - 18 mm .709" spacing

### Characteristics

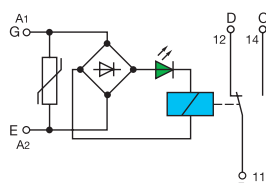
Relay characteristics	RB 121	RB 121 A	RB 121 AV	RB 121 A	
<b>COIL</b>					
Rated voltage +15%, -10% on DC ±15% on AC	12 V DC	24 V AC/DC	48 V AC/DC	110 V AC/DC	220 V AC/DC
Frequency		50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Power	0.5 W	0.7 W	0.96 W	0.5 W	1.1 VA
Rated current	41 mA	29 mA	20 mA	4.3 mA	5 mA
Drop-out voltage at 20°C	3.2 V DC	5 V AC/DC	5.6 V AC/DC	14.5 V AC/DC	25.2 V AC
Permissible leakage current					
Status device	red LED		green LED	red LED	
<b>CONTACT</b>					
Type	1 SPDT				
Voltage switching range min./max.	12 V / 380 V				
Current switching range min./max.	10 mA / 8 A				
Load switching range	AC1 min. / max. DC1 min. / max. 0.6 VA / 2000 VA 0.6 W / see curve below				
Number of on-load operations	2 x 10 <sup>5</sup>				
Number of off-load operations	2 x 10 <sup>7</sup>				
Operating speed	7 ms 6 ms				
Bounce	2 ms				
Insulation coil / contact	2500 V RMS				
Resistance to shock coil / contact	4000 V RMS				
Insulation contact / contact	1000 V RMS				
Ambient temperature storage operating	-40°C to +80°C see derating curves				
<b>Other characteristics</b>					
Body material	grey UL 94 V0				
Wire	Solid wire				
size	Stranded wire 0.2 - 4 mm <sup>2</sup> / 22 - 12 AWG				
Rated wire size	0.22 - 2.5 mm <sup>2</sup> / 22 - 12 AWG				
Wire stripping length	2.5 mm <sup>2</sup> / 12 AWG 7 mm .276"				
Recommended screwdriver	3.5 mm .137"				
Protection	IP20 NEMA1				
Recommended torque	0.4 - 0.6 Nm 3.5 - 5.3 lb.in				
Approvals	UL us for RB 121A-24VAC/DC and RB 121A-110-220VAC/DC, CE				
Reference standards	CEI 947-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IRC 1000-4-2, 3, 4, 5, 6.				



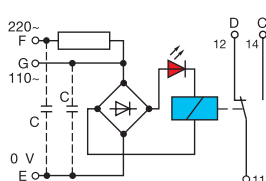
### Relay blocks R1800



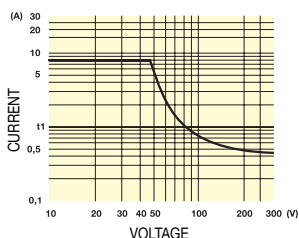
### RB 121 12 VDC RB 121 A 24 VAC/DC



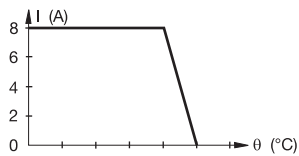
### RB 121 AV 48 VAC/DC



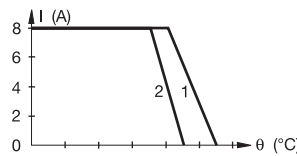
### RB 121 A 110-220 VAC/DC



### Derating curves



### RB 121 12 VDC RB 121 A 24 VAC/DC RB 121 AV 48 VAC/DC



### RB 121 A 110-220 VAC/DC

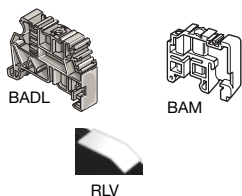
1 : 110 V AC/DC block  
2 : 220 V AC block

### Order codes

Description	Type	Order P/N	Packaging	Weight kg
Relay block 1 SPDT high level	RB 121-12VDC	1SNA 610 125 R2400	1	0.05
Relay block 1 SPDT high level	RB 121A-24VAC/DC	1SNA 610 004 R0700	1	0.05
Relay block 1 SPDT high level	RB 121AV-48VAC/DC	1SNA 610 006 R0100	1	0.05
Relay block 1 SPDT high level	RB 121A-110-220VAC/DC	1SNA 610 132 R2300	1	0.05

### Accessories

Accessories	Type	Order P/N	Packaging	Weight kg
End section	BADL V0	1SNA 399 903 R0200	50	
	BAM	1SNA 103 002 R2600	50	
	BAM V0	1SNA 399 306 R0300	50	
Lengthwise marker	RLV	1SNA 103 849 R0300	100	
Marking method	RC55	see marking		



# Relay Interfaces

## R1800 relay modules

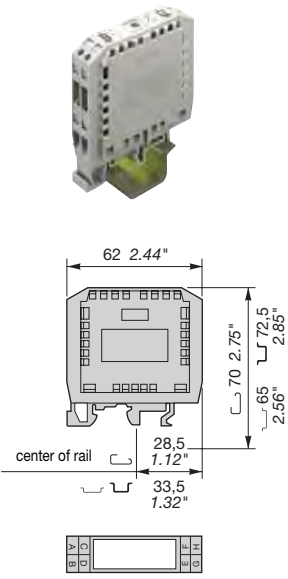


DIN 1-3

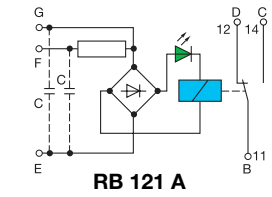
Relay : 1 SPDT high level contacts 10 mA to 8 A - 18 mm .709" or 23 mm .906" spacing

### Characteristics

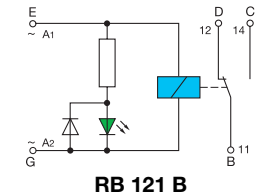
Relay characteristics	RB 121 A		RB 121 B	RB 121 AR1		RB 121 AR2	
<b>COIL</b>							
Rated voltage +20%, -15% on DC +10%, -15% on AC	110 V AC/DC	135 V AC/DC	115 V AC	110 V DC	110 V AC	110 V DC	110 V AC
Frequency	50/60 Hz	50/60 Hz	50/60 Hz		50/60 Hz		50/60 Hz
Power	0.5 W	0.6 W	1.3 VA	0.5 W	4.4 VA	0.5 W	1 VA
Rated current	4.3 mA	4.4 mA	11 mA	4.5 mA	40 mA	4.5 mA	9 mA
Drop-out voltage	11 V AC/DC	13.5 V DC	20.7 V AC	19 V DC	20 V AC	19 V DC	20 V AC
Permissible leakage current							
Status device	green LED			red LED			
<b>CONTACT</b>							
Type	1 SPDT			1 SPDT			
Voltage switching range min./max.	12 V / 250 V			12 V / 380 V			
Current switching range min./max.	10 mA / 8 A		10 mA / 3 A	10 mA / 8 A			
Load switching range							
AC1 min. / max.	0.6 VA / 2000 VA		580 mVA / 750 VA	0.6 VA / 2000 VA			
DC1 min. / max.	0.6 W / see curve		230 mW / see curve	0.6 W / 90 W			
Number of on-load operations	2 x 10 <sup>6</sup> ohmic		3A/100W : 5 x 10 <sup>5</sup> 3A/750VA : 10 <sup>5</sup>	2 x 10 <sup>6</sup> ohmic			
Number of off-load operations	2 x 10 <sup>7</sup>		10 <sup>7</sup>	2 x 10 <sup>7</sup>			
Operating speed	F 7 ms		2 ms	F 7 ms			
	O 6 ms		2 ms	O 3 ms			
Bounce	2 ms		0.5 ms	2 ms			
Insulation coil / contact	2500 V RMS		1500 V RMS	2500 V RMS			
Resistance to shock coil / contact							
Insulation contact / contact	1500 V RMS		750 V RMS	1000 V RMS			
Ambient temperature	storage -40°C to +80°C			operating see derating curves			
<b>Other characteristics</b>							
Body material	orange or grey			UL 94 V2			
Wire	Solid wire			0 - 4 mm <sup>2</sup> / 20 - 12 AWG			
size	Stranded wire			0 - 2.5 mm <sup>2</sup> / 20 - 12 AWG			
Rated wire size				2.5 mm <sup>2</sup> / 12 AWG			
Wire stripping length				7 mm .276"			
Recommended screwdriver				3.5 mm .137"			
Protection				IP20 NEMA1			
Recommended torque				0.4 - 0.6 Nm 3.5 - 5.3 lb.in			
Approvals	CE		UL	FUS CE		CS CE	
Reference standards	CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (parts) / CEI 60664-1 / CEM : IRC 1000-4-2, 3, 4, 5, 6						



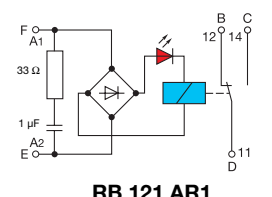
### Relay blocks R1800



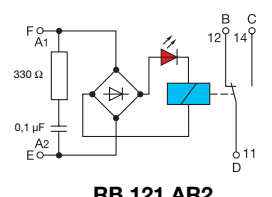
RB 121 A



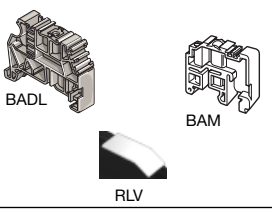
RB 121 B



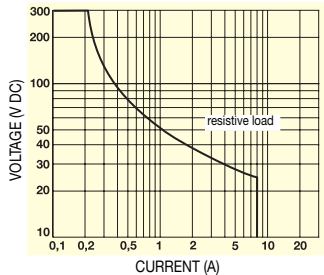
RB 121 AR1



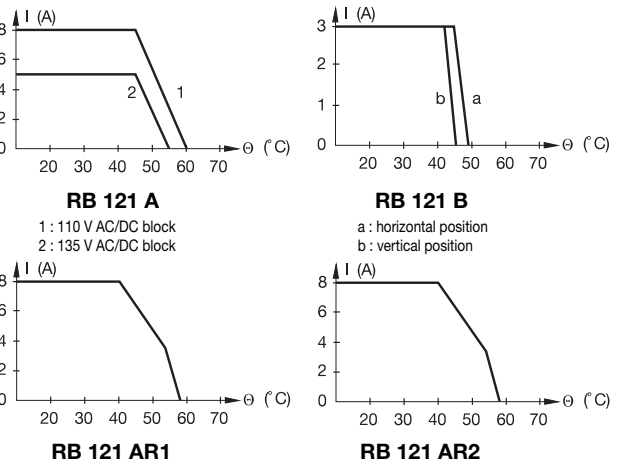
RB 121 AR2



### Max. DC load breaking capacity



### Derating curves



### Order codes

Description	Type	Order P/N	Packaging Weight kg
Relay module 1 SPDT high level 18 mm spacing	RB 121 A 110-135 V AC/DC	1SNA 010 226 R2300	1
Relay module 1 SPDT high level 18 mm spacing	RB 121 B 115 V AC	1SNA 010 067 R2700	1
Relay module orange 1 SPDT high level 23 mm spacing	RB 121 B 115 V AC	1SNA 010 088 R2500	1
Relay module 1 SPDT* high level 18 mm spacing	RB 121 AR1 110 V AC/DC	1SNA 010 158 R0700	1
Relay module 1 SPDT* high level 18 mm spacing	RB 121 AR2 110 V AC/DC	1SNA 010 168 R0100	1

\* with leakage current protection ; orange

### Accessories

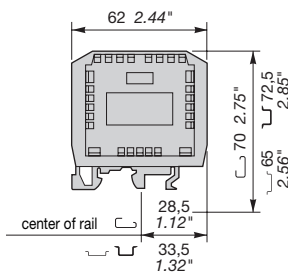
End section	Type	Order P/N	Weight kg
BADL	BADL V0	1SNA 399 903 R0200	50
BAM	BAM	1SNA 103 002 R2600	50
BAM V0	BAM V0	1SNA 399 306 R0300	50
Lengthwise marker	RLV	1SNA 103 849 R0300	100
Marker	RC55	see markers	

# Relay Interfaces

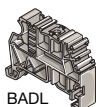
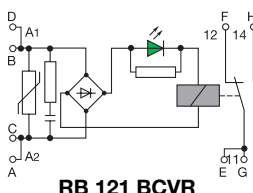
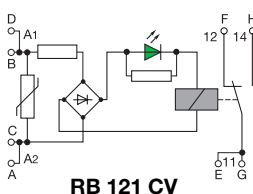
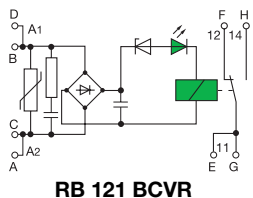
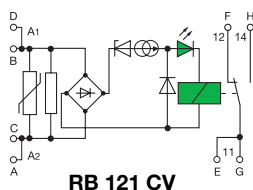
## R1800 relay modules



DIN 1-3



Relay blocks R1800

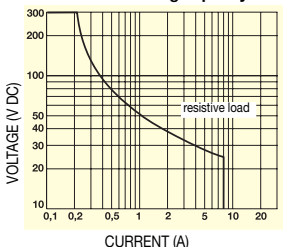


- Relay : 1 SPDT very low level contacts 10<sup>-6</sup> A to 5 A - 18 mm .709" spacing
- Relay : 1 SPDT low level contacts 5 mA to 6 A - 18 mm .709" spacing

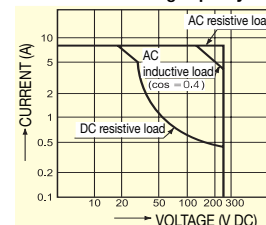
### Characteristics

Relay characteristics	RB 121 CV	RB 121 BCVR	RB 121 CV	RB 121 BCVR
<b>COIL</b>				
Rated voltage +20%, -15% on DC +10%, -15% on AC	13.2 to 26.4 V DC	32.4 to 52.8 V DC	24 V DC	48 V DC
Frequency		50/60 Hz		
Power	0.8 W	1.2 W	0.85 W	1 W
Rated current	34 mA	24 mA	35 mA	20 mA
Drop-out voltage	5 V DC	12 V DC	2.4 V DC	4.8 V DC
Permissible leakage current		1 mA		3.5 mA
Status device	green LED			
<b>CONTACT</b>				
Type	1 SPDT		1 SPDT	
Voltage switching range min./max.	10 <sup>-3</sup> V / 250 V		12 V / 250 V	
Current switching range min./max.	10 <sup>-6</sup> A / 5 A		5 mA / 3 A	
Load switching range			5 mA / 6 A	
AC1 min. / max. VA	10 <sup>-6</sup> VA / 1250 VA		60 mVA / 750 VA	
DC1 min. / max. VA	10 <sup>-6</sup> W / see curve 2 hereunder		60 mW / see curve 1 hereunder	
Number of on-load operations	2 x 10 <sup>6</sup> ohmic		2 x 10 <sup>6</sup> ohmic	
Number of off-load operations				
Operating speed	10 <sup>7</sup>		2 x 10 <sup>7</sup>	
Bounce	8 ms		7 ms	
Insulation coil / contact	4 ms		10 ms	
Resistance to shock coil / contact	1 ms		4 ms	
Insulation contact / contact	2500 V RMS			
Ambient temperature storage	≥ 1000 V RMS			
operating	-40°C à +80°C see derating curves			
<b>Other characteristics</b>				
Body material	orange		UL 94 V2	
Wire	Solid wire		0 - 4 mm <sup>2</sup> / 20 - 12 AWG	
size	Stranded wire		0 - 2.5 mm <sup>2</sup> / 20 - 12 AWG	
Rated wire size			2.5 mm <sup>2</sup> / 12 AWG	
Wire stripping length			7 mm .276"	
Recommended screwdriver			3.5 mm .137"	
Protection			IP20 NEMA1	
Recommended torque			0.4 - 0.6 Nm 3.5 - 5.3 lb.in	
Approvals			CE	
Reference standards	CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (parts) / CEI 60664-1 / CEM : IRC 1000-4-2, 3, 4, 5, 6			

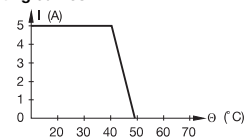
Max. DC load breaking capacity : curve 1



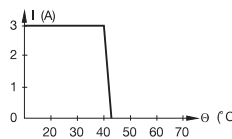
Max. DC load breaking capacity : curve 2



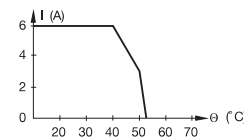
### Derating curves



**RB 121 CV**  
**RB 121 BCVR**



**RB 121 CV**



**RB 121 BCVR**

### Order codes

Description	Type	Order P/N	Packaging Weight kg
Relay module 1 SPDT very low level	RB 121 CV 24 V DC	1SNA 010 154 R2300	1
Relay module 1 SPDT very low level	RB 121 CV 48 V DC	1SNA 010 155 R2400	1
Relay module 1 SPDT very low level	RB 121 BCVR 110 V AC	1SNA 010 156 R2500	1
Relay module 1 SPDT low level	RB 121 CV 24 V DC	1SNA 010 184 R1200	1
Relay module 1 SPDT low level	RB 121 CV 48 V DC	1SNA 010 185 R1300	1
Relay module 1 SPDT low level	RB 121 BCVR 110 V AC	1SNA 010 186 R1400	1

### Accessories

End section	BADL V0	1SNA 399 903 R0200	50
	BAM	1SNA 103 002 R2600	50
	BAM V0	1SNA 399 306 R0300	50
Lengthwise marker	RLV	1SNA 103 849 R0300	100
Marker	RC55	see markers	

# Relay Interfaces

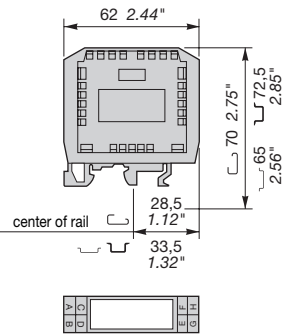
## R1800 relay modules



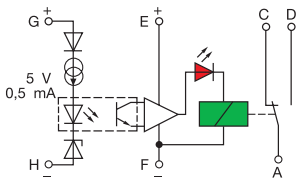
DIN 1-3



**EBO 1R**



**Relay blocks R1800**

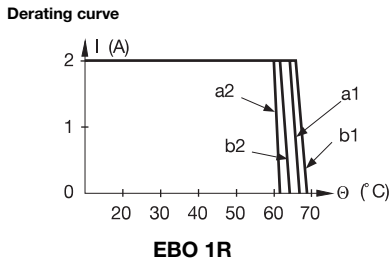
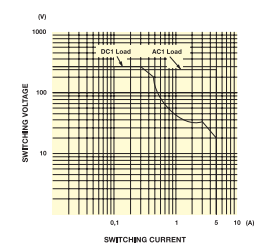


**EBO 1R**

**Relay : 1 SPDT with TTL compatible control - 18 mm .709" spacing**

### Characteristics

Relay characteristics	EBO 1R	
<b>COIL/INPUT</b>	Input GH	Power supply EF
Rated voltage +20%, -15% on DC +10%, -15% on AC	5 V DC	24 V to 30 V DC
Frequency		
Power	2.5 mW	0.83 W
Rated current	0.5 mA	25 mA
Drop-out point	2 V DC	17 V DC
Drop-out voltage	2.1 V	7 V
Insulation input / power supply	2000 V RMS	
Status device	red LED	
<b>CONTACT</b>		
Type	1 SPDT	
Voltage switching range min./max.	125 V AC / 150 V DC	
Current switching range min./max.	2 A	
Load switching range	50 VA / 30 W	
AC1 min. / max.	10 <sup>-5</sup> VA / see curve hereunder	
DC1 min. / max.	10 <sup>-5</sup> W	
Load min.	10 <sup>6</sup>	
Number of on-load operations	2 x 10 <sup>7</sup>	
Number of off-load operations	30 ms	
Operating speed	11 ms	
Bounce	0.2 ms	
Insulation coil / contact	1400 V RMS	
Resistance to shock coil / contact	2 kV	
Ambient temperature storage	-40°C to +80°C	
operating	see derating curve	
<b>Other characteristics</b>		
Body material	gris	
Wire	UL 94 V2	
size	Solid wire	
Stranded wire	0 - 4 mm <sup>2</sup> / 20 - 12 AWG	
Rated wire size	0 - 2.5 mm <sup>2</sup> / 20 - 12 AWG	
Wire stripping length	2.5 mm <sup>2</sup> / 12 AWG	
Recommended screwdriver	7 mm .276"	
Protection	3.5 mm .137"	
Recommended torque	IP20 NEMA1	
Approvals	0.4 - 0.6 Nm 3.5 - 5.3 lb.in	
	<b>CE</b>	
Reference standards	CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (parts) / CEI 60664-1 / CEM : IRC 1000-4-2, 3, 4, 5, 6	



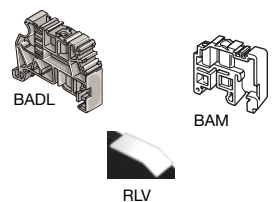
a1. horizontal at 24 V  
a2. horizontal at 30 V  
b1. vertical at 24 V  
b2. vertical at 30 V

### Order codes

Description	Type	Order P/N	Packaging Weight kg
Relay module 1 SPDT	EBO 1R 5 V DC	1SNA 010 131 R1400	1

### Accessories

End section	BADL V0	1SNA 399 903 R0200	50
	BAM	1SNA 103 002 R2600	50
	BAM V0	1SNA 399 306 R0300	50
Lengthwise marker	RLV	1SNA 103 849 R0300	100
Marking method	RC55	see markers	

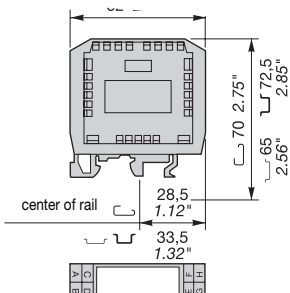


# Relay Interfaces

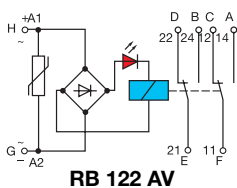
## R1800 relay modules



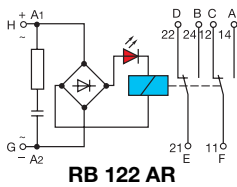
DIN 1-3



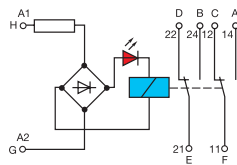
Relay blocks R1800



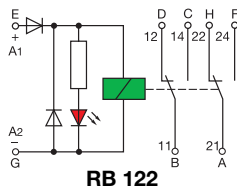
RB 122 AV



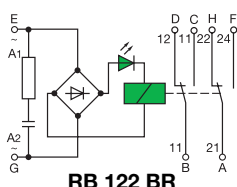
RB 122 AR



RB 122 A



RB 122



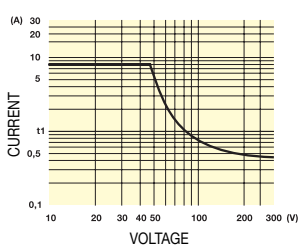
RB 122 BR



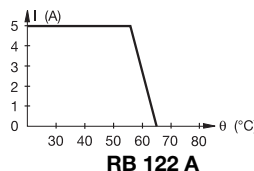
- Relay : 1 DPDT high level contacts 10 mA to 5 A - 18 mm .709" or 23 mm .906" spacing
- Relay : 1 DPDT very low level contacts 10<sup>-7</sup> A to 5 A - 18 mm .709" or 23 mm .906" spacing

### Characteristics

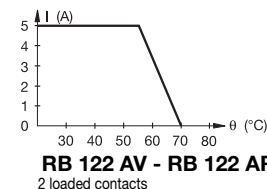
Relay characteristics	RB 122 AV	RB 122 AR	RB 122 A	RB 122	RB 122 BR
<b>COIL</b>					
Rated voltage +15%, -10% on DC ±15% on AC	24 VAC/DC	48 VAC/DC	110 VAC/DC	24 V DC	48 V DC
Frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Power	0.7 W	0.7 W	0.7 W - 1.8 VA	1.2 W	0.31 W
Rated current	26 mA	14 mA	16 mA	5.5 mA	13 mA
Drop-out voltage at 20°C	2.4 V AC/DC	4.8 V AC/DC	11 V AC/DC	22 V AC/DC	2.4 V DC
Permissible leakage current		1.6 mA			
Status device			red LED		green LED
<b>CONTACT</b>					
Type	1 DPDT				
Voltage switching range min./max.	12 V / 250 V	10 <sup>-3</sup> V / 250 V	12 V / 250 V	10 <sup>-3</sup> V / 250 V	
Current switching range min./max.	10 mA / 5 A				
Load switching range	AC1 min. / max. DC1 min. / max.			10 <sup>-10</sup> VA / 1000 VA	
	0.6 VA / 1250 VA			10 <sup>-19</sup> W / see curve hereunder	
Number of on-load operations	2 x 10 <sup>5</sup>			5A/100W - 5A/1kVA : 10 <sup>5</sup>	
Number of off-load operations	2 x 10 <sup>7</sup>			2 x 10 <sup>8</sup>	
Operating speed	F	7 ms	4 ms	3 ms	8 ms
	O	3 ms	0.5 ms	0.5 ms	0.5 ms
Bounce					
Insulation coil / contact	2000 V RMS			1500 V RMS	
Resistance to shock coil / contact	4000 V RMS			4000 V RMS	
Insulation contact / contact	1500 V RMS			2000 V RMS	
Ambient temperature storage	-40°C to +80°C				
operating	see derating curves				
<b>Other characteristics</b>					
Body material	grey				
Wire	Solid wire				
Wire size	Stranded wire				
Rated wire size	2.5 mm <sup>2</sup> / 12 AWG				
Wire stripping length	7 mm .276"				
Recommended screwdriver	3.5 mm .137"				
Protection	IP20 NEMA1				
Recommended torque	0.4 - 0.6 Nm 3.5 - 5.3 lb.in				
Approvals	UL for RB 122AR-110VAC/DC, RB 122-24VDC, RB 122BR-110VAC and RB122AV-24VAC/DC, CE				
Reference standards	CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IRC 1000-4-2, 3, 4, 5, 6.				



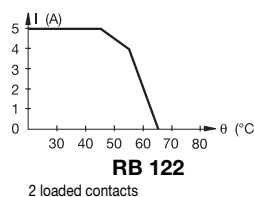
### Derating curves



RB 122 A

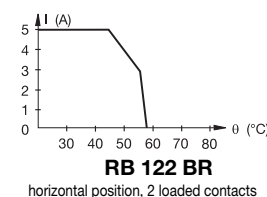


RB 122 AV - RB 122 AR  
2 loaded contacts



RB 122

2 loaded contacts



RB 122 BR

horizontal position, 2 loaded contacts

### Order codes

Description	Type	Order P/N	Packaging	Weight
Relay module 1 DPDT high level 18 mm sp.	RB 122AV-24VAC/DC	1SNA 610 121 R2000	1	0.05
Relay module 1 DPDT high level 18 mm sp.	RB 122AV-48VAC/DC	1SNA 610 122 R2100	1	0.05
Relay module 1 DPDT high level 18 mm sp.	RB 122AR-110VAC/DC	1SNA 610 011 R2500	1	0.05
Relay module 1 DPDT high level 18 mm sp.	RB 122A-220VAC/DC	1SNA 610 123 R2200	1	0.05
Relay module 1 DPDT very low level 18 mm sp.	RB 122-24VDC	1SNA 610 059 R1500	1	0.05
Relay module 1 DPDT very low level 18 mm sp.	RB 122-48VDC	1SNA 610 060 R1200	1	0.05
Relay module 1 DPDT very low level 23 mm sp.	RB 122BR-110VAC	1SNA 610 115 R2200	1	0.05
Relay module 1 DPDT very low level 23 mm sp.	RB 122BR-220VAC	1SNA 610 089 R0400	1	0.05

### Accessories

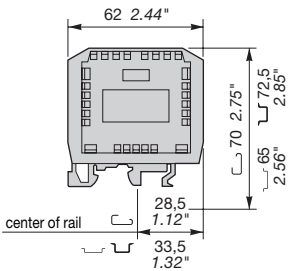
End section	BADL V0	1SNA 399 903 R0200	50
	BAM	1SNA 103 002 R2600	50
	BAM V0	1SNA 399 306 R0300	50
Lengthwise marker	RLV	1SNA 103 849 R0300	
Marking method	RC55	see marking	

# Relay Interfaces

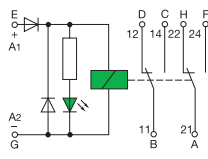
## R1800 relay modules



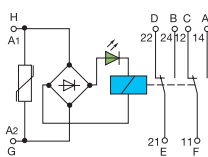
DIN 1-3



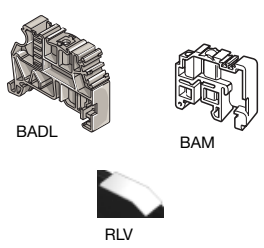
### Relay blocks R1800



RB 122



RB 122 A

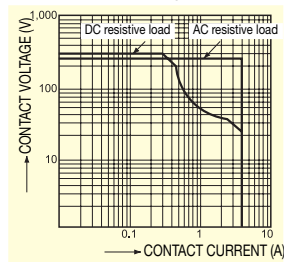


- Relay : 1 DPDT very low level contacts 10<sup>-7</sup> A to 4 A - 18 mm .709" spacing
- Relay : 1 DPDT high level contacts 10 mA to 3 A - 18 mm .709" spacing

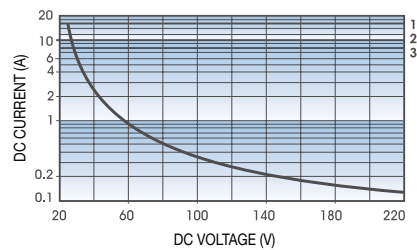
### Characteristics

Relay characteristics	RB 122	RB 122 A
<b>COIL</b>		
Rated voltage +20%, -15% on DC +10%, -15% on AC	12 V DC	135 V AC/DC
Frequency		50/60 Hz
Power	0.26 W	0.8 W
Rated current	22 mA	5.8 mA
Drop-out voltage	2 V DC	13.5 V AC/DC
Drop-in voltage		
Permissible leakage current		
Status device	green LED	green LED
<b>CONTACT</b>		
Type	1 DPDT	1 DPDT
Voltage switching range min./max.	10 <sup>3</sup> V / 250 V	12 V / 250 V
Current switching range min./max.	10 <sup>-7</sup> A / 4 A	10 mA / 3 A
Load switching range		
AC1 min. / max.	10 <sup>-10</sup> VA / 1000 VA	0.6 VA / 750 VA
DC1 min. / max.	10 <sup>-10</sup> W / see curve 1 hereunder	see curve 2 hereunder
Number of on-load operations	2 x 10 <sup>5</sup> resistive	2 x 10 <sup>5</sup> resistive
Number of off-load operations	10 <sup>6</sup>	2 x 10 <sup>6</sup>
Operating speed		
F	8 ms	7 ms
O	7.5 ms	4 ms
Bounce	0.21 ms	3 ms
Insulation coil / contact	1500 V RMS	2000 V RMS
Resistance to shock coil / contact		
Insulation contact / contact	1500 V RMS	2000 V RMS
Ambient temperature storage	-40°C to +80°C	
operating	see derating curves	
<b>Other characteristics</b>		
Body material	grey	UL 94 V2
Wire	Solid wire	0 - 4 mm <sup>2</sup> / 20 - 12 AWG
size	Stranded wire	0 - 2.5 mm <sup>2</sup> / 20 - 12 AWG
Rated wire size		2.5 mm <sup>2</sup> / 12 AWG
Wire stripping length		7 mm .276"
Recommended screwdriver		3.5 mm .137"
Protection		IP20 NEMA1
Recommended torque		0.4 - 0.6 Nm 3.5 - 5.3 lb.in
Approvals	CE	CE, UL, ENEC
Reference standards	CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (parts) / CEI 60664-1 / CEM : IRC 1000-4-2, 3, 4, 5, 6	

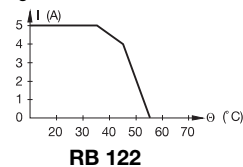
Max. DC load breaking capacity : curve 1



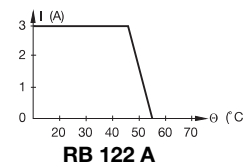
Max. DC load breaking capacity : curve 2



Derating curves



RB 122



RB 122 A

### Order codes

Description	Type	Order P/N	Packaging Weight kg
<span style="color: green;">■</span> Relay module 1 DPDT very low level	RB 122	12 V DC 1SNA 010 174 R0700	1
<span style="color: blue;">■</span> Relay module 1 DPDT high level	RB 122 A	135 V AC/DC 1SNA 010 228 R0500	1

### Accessories

End section	BADL V0	1SNA 399 903 R0200	50
	BAM	1SNA 103 002 R2600	50
	BAM V0	1SNA 399 306 R0300	50
	Lengthwise marker	RLV	1SNA 103 849 R0300
Marker	RC55	see markers	

# Electronic Interfaces

## R1800 optocoupler modules



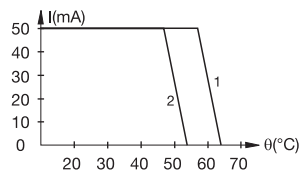
DIN 3

Optocoupler : 5 to 53 V DC / 50 mA output - 18 mm .709" spacing

### Characteristics

Opto. characteristics	EBO3 DC				
	<b>INPUT</b>				
Input voltage	4 to 5.5 V DC	9.6 to 13.2 V DC	12 to 16.5 V DC	19.2 to 26.4 V DC	38.4 to 52.8 V DC
Frequency					
Input current			11 mA		
Pull-in voltage at Is=100%	4 V	9.6 V	12 V	19.2 V	38.4 V
Switching time C / O			20 μs / 80 μs		
Operating frequency			5000 Hz		
Permissible leakage current					
<b>OUTPUT</b>					
Output voltage			4.5 to 53 V DC		
Output current min.			0.5 mA		
Output current max.			50 mA		
Output leakage current at Umax.			< 50 μA		
Residual voltage at I max and U rated			1 V		
			typical		
			max.		
Frequency on inductive load			2500 V RMS		
Isolation Input / Output					
<b>TEMPERATURE</b>					
Ambient temperature			- 40°C to + 80°C		
storage					
operating			See derating curves		
<b>Other characteristics</b>					
Body material	grey				UL 94 V0
Wire	Solid wire				0.22-4 mm <sup>2</sup> / 22-12 AWG
size	Stranded wire				0.22-2.5 mm <sup>2</sup> / 22-12 AWG
Rated wire size					2.5 mm <sup>2</sup> / 12 AWG
Wire stripping length					7 mm .276"
Recommended screwdriver					3.5 .137"
Protection					IP 20 NEMA 1
Recommended torque					0.4-0.6 Nm
Approvals					<b>CE</b>
Reference standards	CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IRC 1000-4-2, 3, 4, 5, 6.				

### Derating curves



### EBO3 DC

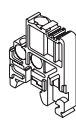
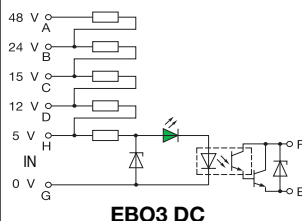
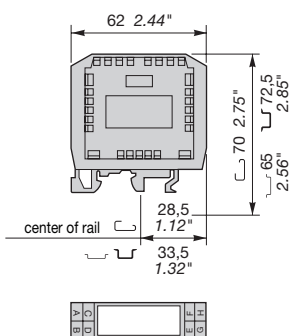
- 1 : 5 to 24 V DC model  
2 : 48 V DC model

### Order codes

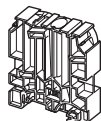
Description	Type	Order P/N	Packaging	Weight kg
Optocoupler module 50 mA / DC	EBO3 DC	1SNA 610 230 R1100	1	0.03

### Accessories

High end stop	BAMH 9,1 mm	1SNA 114 836 R0000	50
	BAMH V0 9,1 mm	1SNA 194 836 R0100	50
	BADH 12 mm	1SNA 116 900 R2700	50
Lengthwise marker	RLV	1SNA 103 849 R0300	100
Marking method	RC55	see marking	



BAMH



BADH



RLV

# Electronic Interfaces

## R1800 optocoupler modules



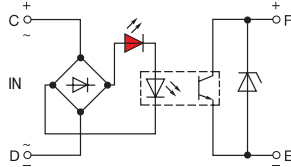
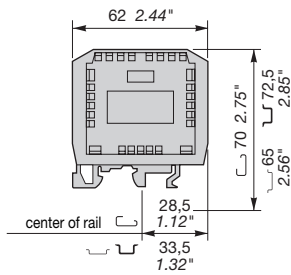
DIN 3



EBO1 24 - 127/230 V AC/DC



EBO1 48 V AC/DC



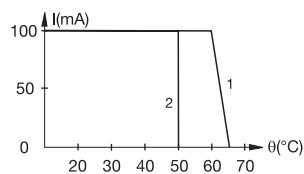
EBO1...

Optocoupler : 5 to 58 V DC / 100 mA output - 18 mm .709" spacing  
 Optocoupler : 5 to 58 V DC / 50 mA output - 18 mm .709" spacing

### Characteristics

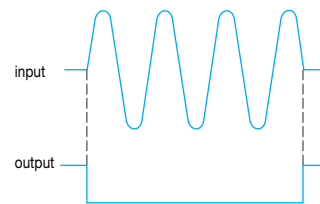
Opto. characteristics	EBO1 - 24 V AC/DC		EBO1 - 48 V AC/DC		EBO1 - 127-220 V AC/DC			
	INPUT							
Input voltage	12 to 27.6 V AC	16 to 27.6 V DC	20 to 58 V AC	29 to 58 V DC	88 to 140 V AC	97.8 to 140 V DC	130 to 253 V AC	150 to 253 V DC
Frequency	50/60 Hz		50 / 60 Hz		50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Input current	10 mA	8 mA	5 mA	5 mA	6 mA	6 mA	5 mA	5 mA
Pull-in voltage at Is=100%	12 V AC	16 V DC			88 V AC	88 V AC	128 V AC	128 V AC
Switching time C / O	10 ms / 7 ms		10 ms / 7 ms		25 ms / 10 ms			
Operating frequency	30 Hz		30 Hz		15 Hz			
Permissible leakage current								
<b>OUTPUT</b>								
Output voltage	4.5 to 58 V DC							
Output current min.	1 mA							
Output current max.	100 mA							
Output leakage current at Umax.	< 50 µA							
Residual voltage at I max and U rated	typical 1 V max. 1.3 V							
Frequency on inductive load	2500 V RMS							
Isolation Input / Output	2500 V RMS							
<b>TEMPERATURE</b>								
Ambient temperature storage	- 40°C to + 80°C							
operating	See derating curves							
<b>Other characteristics</b>								
Body material	grey		grey		grey		grey	
Wire	Solid wire		Solid wire		0.2-4 mm <sup>2</sup> / 22-12 AWG			
size	Stranded wire		Stranded wire		0.22-2.5 mm <sup>2</sup> / 22-12 AWG			
Rated wire size	2.5 mm <sup>2</sup> / 12 AWG							
Wire stripping length	7 mm .276"							
Recommended screwdriver	3.5 .137"							
Protection	IP 20 NEMA 1							
Recommended torque	0.4-0.6 Nm							
Approvals	CE							
Reference standards	CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (in relevant parts) / CEI 60664-1 / CEM : IRC 1000-4-2, 3, 4, 5, 6.							

### Derating curves



EBO1 24 - 127/230 V AC/DC

- 1 : 24 V AC/DC model
- 2 : 127-230 V AC/DC model



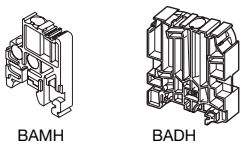
EBO1 48 V AC/DC

### Order codes

Description	Type	Order P/N	Packaging	Weight
Optocoupler module 100 mA/DC	EBO1-24VAC/DC	1SNA 610 022 R2000	1	0.03
Optocoupler module 100 mA/DC	EBO1-48VAC/DC	1SNA 010 048 R0400	1	0.03
Optocoupler module 50 mA/DC	EBO1-127VAC/DC	1SNA 610 108 R1400	1	0.03
Optocoupler module 50 mA/DC	EBO1-220VAC/DC	1SNA 610 023 R2100	1	0.03

### Accessories

High end stop	BAMH 9,1 mm	1SNA 114 836 R0000	50
	BAMH V0 9,1 mm	1SNA 194 836 R0100	50
	BADH 12 mm	1SNA 116 900 R2700	50
Lengthwise marker	RLV	1SNA 103 849 R0300	100
Marking method	RC55	see marking	



BAMH

BADH



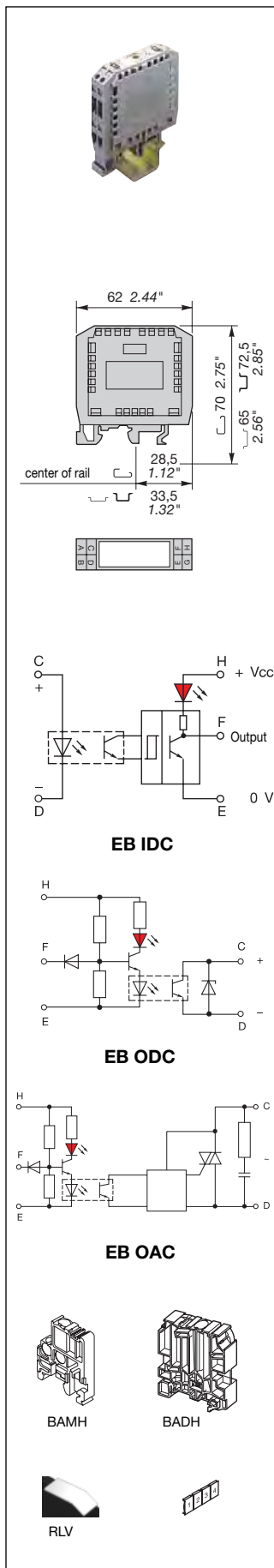
RLV

# Electronic Interfaces

## R1800 optocoupler modules



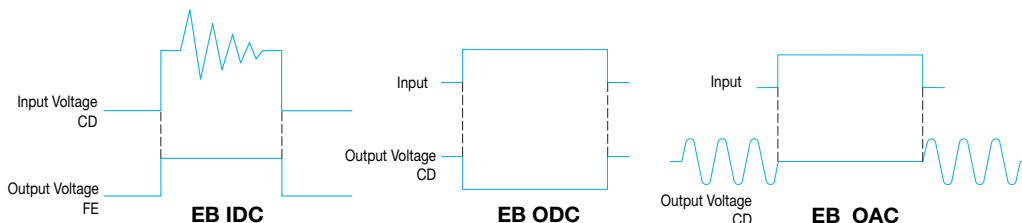
DIN 3



Optocoupler : 5 to 60 V DC / 1 A output - 18 mm .709" spacing  
 Optocoupler : 5 to 280 V AC / 1 A output - 18 mm .709" spacing

### Characteristics

Opto. characteristics	EB IDC		EB ODC		EB OAC	
	TTL	HLL	TTL	HLL	TTL	HLL
<b>INPUT</b>						
Input voltage	110 to 32 V DC					
Voltage HE			4.5 to 6 V DC	19.2 to 28.8 V DC	4.5 to 6 V DC	19.2 to 28.8 V DC
Frequency	32 mA at 32 V					
Input current	32 mA at 32 V					
Current HE			11 mA	14 mA	28 mA	12 mA
Non-functioning current	1.5 mA					
FE current in mode 3					- 1.5 mA	- 0.7 mA
Switching time C / O	5 ms		≤ 250 μs		10 ms	
Operating frequency	< 100 Hz		< 200 Hz		< 50 Hz	
Power requirement	60 mW	430 mW	55 mW	340 mW	140 mW	290 mW
<b>OUTPUT</b>						
Logic voltage supply HE	5 V ± 1 V	24 V ± 6 V				
Logic current supply HE	12 mA	18 mA				
Output voltage	5 V TTL	24 V HLL	12 to 60 V DC		24 to 280 V AC	
Min. output current			50 mA		25 mA RMS	
Max. output current	25 mA		1 A derating 20 mA / °C		1 A derating 20 mA / °C	
Output leakage current at U <sub>max</sub>	100 μA		3 mA at 60 V		4 mA max.	
Residual voltage	0.4 V at 25 mA		2.6 V max. at 1 A		± 1.4 V	
Peak current			4 A / 1 s		30 A / 20 ms	
Isolation Input / Output	2500 V RMS		2500 V RMS		2500 V RMS	
<b>TEMPERATURE</b>						
Ambient temperature	storage		- 40°C à + 80°C			
	operating		see derating curve			
<b>Other characteristics</b>						
Body material	grey		UL 94 V2			
Wire	Solid wire		0 - 4 mm <sup>2</sup> / 20-12 AWG			
size	Stranded wire		0 - 2.5 mm <sup>2</sup> / 20-12 AWG			
Rated wire size			2.5 mm <sup>2</sup> / 12 AWG			
Wire stripping length			7 mm .276"			
Recommended screwdriver			3.5 .137"			
Protection			IP 20 NEMA 1			
Recommended torque			0.4 - 0.6 Nm 3.5 - 5.3 lb.in			
Approvals			CE			
Reference standards	CEI 947-7-1 / CEI 947-1 / CEI 1131-2 (parts) / CEI 60664-1 / CEM : IRC 1000-4-2, 3, 4, 5, 6					



### Order codes

Description	Type	Order P/N	Packaging Weight kg
Optocoupler module 25 mA / HLL	EB IDC 5	1SNA 010 031 R1300	1
Optocoupler module 25 mA / HLL	EB IDC 24	1SNA 010 033 R1500	1
Optocoupler module input TTL 1 A / DC	EB ODC 5	1SNA 010 037 R1100	1
Optocoupler module input TTL 1 A / DC	EB ODC 24	1SNA 010 039 R2300	1
Optocoupler module input TTL 1 A / AC	EB OAC 5	1SNA 010 034 R1600	1
Optocoupler module input TTL 1 A / AC	EB OAC 24	1SNA 010 036 R1000	1

### Accessories

High end stop	BAMH 9,1 mm	1SNA 114 836 F0000	50
	BAMH V0 9,1 mm	1SNA 194 836 R0100	50
	BADH 12 mm	1SNA 116 900 F2700	50
Lengthwise marker	RLV	1SNA 103 849 F0300	100
Marking method	RC55	see markers	