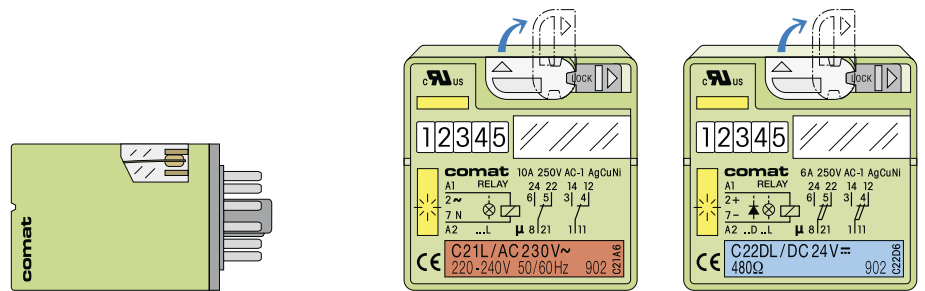


1.1.5 Long Life Relays (Railway)

Long Life Series



Application	Types	Pins	Contacts	Contact ratings	Socket
C20 Series					
Long Life standard	C21			10 A / 250 V	S2
Long Life, reliable switching of lower loads	C22			5 A / 250 V	S2
C30 Series					
Long Life, Railway	C31			10 A / 250 V	S3
Long Life, reliable switching of lower loads, Railway	C32			5 A / 250 V	S3

C21 with single contacts

8 pin plug-in relay, 2-pole, according to IEC 67-I-5a

Type	C21/...V Long Life Relay 2 change over contacts Types with LED status indicator Types with free wheeling diode Manual actuator and mech. status indicator
-------------	---

Maximum contact load	10 A / 250 V AC-1, 4 A / 440 V AC-1 10 A / 30 V DC-1
Recommended minimum contact load	50 mA / 10 V

Contacts	single contact micro disconnection
Type	AgCuNi
Material	10 A
Rated operational current	40 A
Max. inrush current (20 ms)	250 V / 440 V
Rated/Max. switching voltage AC-1	2500 VA AC-1
Max. AC load	300 W / 90 W
Max. DC load 30 V / 230 V DC-1 (Fig. 2)	

Coils (Values are valid at 20 °C)	
Pick-up voltage	$\leq 0.8 \times V_N$
Release voltage AC / DC	$> 0.15 \times V_N / > 0.05 \times V_N$
Nominal power AC / DC	2.5 VA / 1.2 W

Coil Table

V_N AC	Ω	mA	V_N DC	Ω	mA
24	52	104	12	115	104
48	240	55	24	480	50
115	1350	23	48	1850	26
230	5600	11.5	110	9000	12
			220	29000	7.6

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

Insulation	
Test voltage open contact	1.5 kVrms, 1 minute
Test voltage between adjacent poles	1.5 kVrms, 1 minute
Test voltage between contacts and coil	2 kVrms, 1 minute

General Specifications

Ambient temperature operation, storage	-40 ... +70 °C
Pickup time AC / DC	3 ... 10 ms / ≤ 12 ms
Release time AC / DC	2 ... 15 ms / ≤ 3.5 ms
Bounce time NO contact AC / DC	3 ... 6 ms / approx. 3.5 ms
Mechanical life	$\geq 10^8$ operations
Operating frequency at nominal load	≤ 360 operations / h
Ingress Protection degree	IP 40
Weight	80 g

Standard types

AC 50 Hz / 60 Hz: 24, 48, 115, 230

LED

DC: 12, 24, 48, 110, 220

Free wheeling diode

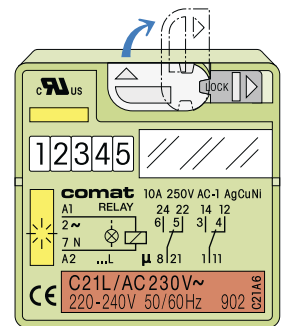
LED + Free wheeling diode

C21/AC...V
C21L/AC...V
C21/DC...V
C21D/DC...V
C21DL/DC...V

"..." enter the voltage for full type designation

Accessories

Socket: **EC-8, S2-B, S2-S, S2-L, S2-P, S2-PO**



Connection diagram

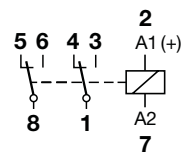


Fig.1 AC voltage endurance

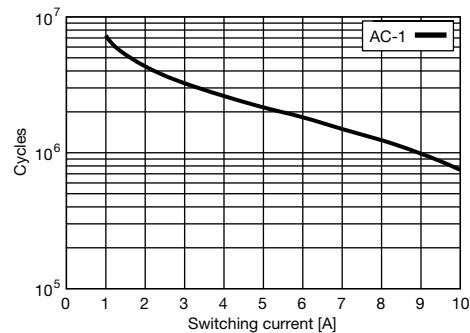
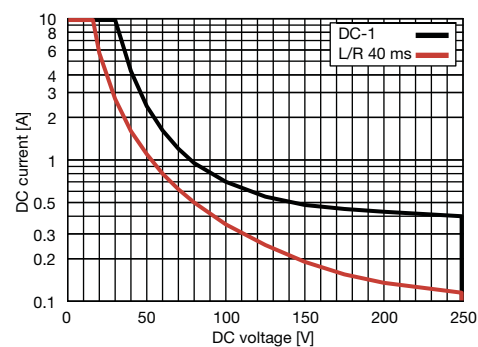
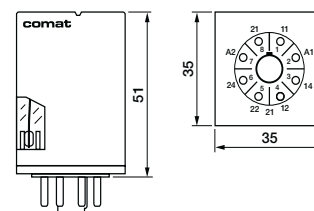


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities



Long life series

C22 with double contacts

8 pin plug-in relay, 2-pole, according to IEC 67-I-5a

Type	C22/...V Long Life Relay 2 change over double contacts Types with LED status indicator Types with free wheeling diode Manual actuator and mech. status indicator
-------------	--

Maximum contact load	6 A / 250 V AC-1 6 A / 30 V DC-1
Recommended minimum contact load	10 mA / 5 V

Contacts	
Type	double contact micro disconnection
Material	AgCuNi
Rated operational current	6 A
Max. inrush current (20 ms)	15 A
Max. switching voltage AC-1	250 V
Max. AC load	1500 VA AC-1
Max. DC load 30V / 230V DC-1 (Fig. 2)	200 W / 90 W

Coils (Values are valid at 20 °C)	
Pick-up voltage	$\leq 0.8 \times V_N$
Release voltage AC / DC	$> 0.15 \times V_N / > 0.05 \times V_N$
Nominal power AC / DC	2.5 VA / 1.2 W

Coil Table					
V_N AC	Ω	mA	V_N DC	Ω	mA
24	52	104	12	115	104
48	240	55	24	480	50
115	1350	23	48	1850	26
230	5600	11.5	110	9000	12
			220	29000	7.6

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

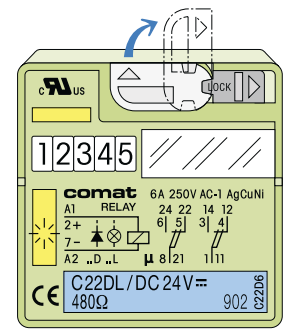
Insulation	
Test voltage open contact	1.5 kVrms, 1 minute
Test voltage between adjacent poles	1.5 kVrms, 1 minute
Test voltage between contacts and coil	2 kVrms, 1 minute

General Specifications	
Ambient temperature operation, storage	-40 ... +70 °C
Pickup time AC / DC	3 ... 10 ms / ≤ 12 ms
Release time AC / DC	2 ... 15 ms / ≤ 3.5 ms
Bounce time NO contact AC / DC	3 ... 6 ms / approx. 3.5 ms
Mechanical life	$\geq 10^8$ operations
Operating frequency at nominal load	≤ 360 operations / h
Ingress Protection degree	IP 40
Weight	80 g

Standard types	
AC 50 Hz / 60 Hz: 24, 48, 115, 230	C22/AC...V
LED	C22L/AC...V
DC: 12, 24, 48, 110, 220	C22/DC...V
Free wheeling diode	C22D/DC...V
LED + Free wheeling diode	C22DL/DC...V

"..." enter the voltage for full type designation

Accessories	
Socket:	EC-8, S2-B, S2-S, S2-L, S2-P, S2-PO



Connection diagram

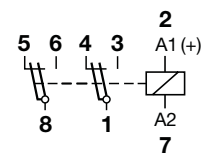


Fig.1 AC voltage endurance

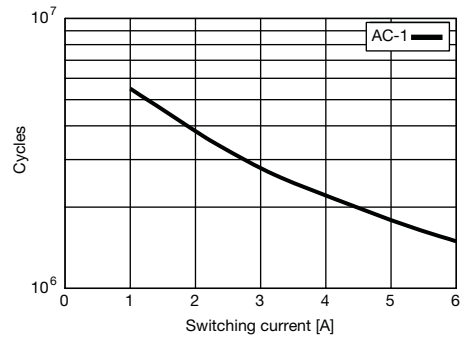
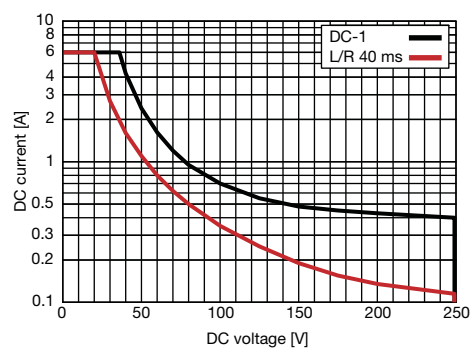
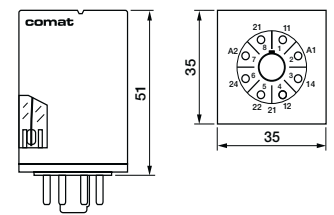


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities



C31 with single contacts

11 pin plug-in relay, 3-pole, according to IEC 67-I-18a



Type **C31/...V**
 Long Life Relay, according to EN 50 155 Railway
 3 change over contacts
 Types with LED status indicator
 Types with free wheeling diode
 Manual actuator and mech. status indicator

Maximum contact load **10 A / 250 V AC-1, 4 A / 440 V AC-1**

Recommended minimum contact load **50 mA / 10 V**

Contacts
 Type single contact micro disconnection
 Material AgCuNi
 Rated operational current 10 A
 Max. inrush current (20 ms) 40 A
 Rated/max. switching voltage 250 V / 440 V
 Max. AC load 2500 VA AC-1
 Max. DC load 30V / 230V DC-1 (Fig. 2) 300W / 90 W

Coils (Values are valid at 20 °C)
 Pick-up voltage $\leq 0.8 \times V_N$
 Release voltage AC / DC $> 0.15 \times V_N / > 0.05 \times V_N$
 Nominal power AC / DC 2.5 VA / 1.2 W

Coil Table

V_N AC	Ω	mA	V_N DC	Ω	mA
24	52	104	12	115	104
48	240	55	24	480	50
115	1350	23	48	1850	26
230	5600	11.5	110	9000	12
			220	29000	7.6

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

Insulation
 Test voltage open contact 1.5 kVrms, 1 minute
 Test voltage between adjacent poles 1.5 kVrms, 1minute
 Test voltage between contacts and coil 2 kVrms, 1minute

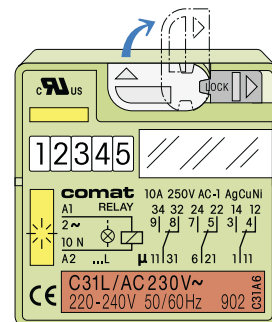
General Specifications
 Ambient temperature operation, storage -40 ... +70 °C
 Pickup time AC / DC 3 ... 10 ms / ≤ 12 ms
 Release time AC / DC 2 ... 15 ms / ≤ 3.5 ms
 Bounce time NO contact AC / DC 3 ... 6 ms / approx. 3.5 ms
 Mechanical life $\geq 10^8$ operations
 Operating frequency at nominal load ≤ 360 operations / h
 Ingress Protection degree IP 40
 Weight 80 g

Standard types
AC 50 Hz / 60 Hz: 24, 48, 115, 230 (240)
LED
DC: 12, 24, 48, 110, 220
Free wheeling diode
LED + Free wheeling diode
Railway EN 50155; NF F 16-101/102

C31/AC...V
C31L/AC...V
C31/DC...V
C31D/DC...V
C31DL/DC...V
C31D/R DC...V

"..." enter the voltage for full type designation

Accessories
 Socket: **EC-11, EC11A, S3-B, S3-S, S3-L, S3-P, S3-PO**



Connection diagram

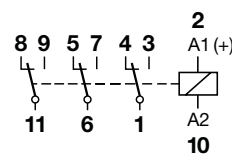


Fig.1 AC voltage endurance

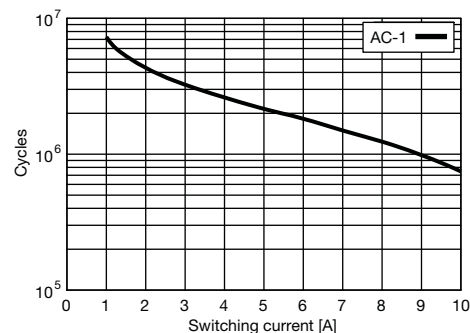
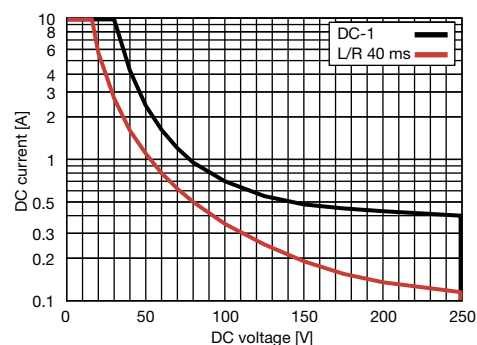
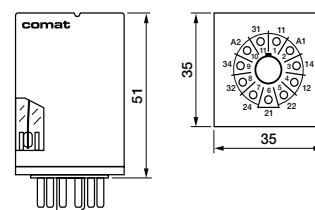


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities



C32 with double contacts

11 pin plug-in relay, 3-pole, according to IEC 67-I-18a



Type	C32/...V Long Life Relay, according to EN 50 155 Railway 3 change over double contacts Types with LED status indicator Types with free wheeling diode Manual actuator and mech. status indicator
-------------	--

Maximum contact load	6 A / 250 V AC-1 6 A / 30 V DC-1
Recommended minimum contact load	10 mA / 5 V

Contacts	
Type	double contact micro disconnection
Rated operational current	6 A
Max. inrush current (20 ms)	15 A
Max. switching voltage AC-1	250 V
Max. AC load	1500 VA AC-1
Max. DC load 30V / 230V DC-1 (Fig. 2)	200 W / 90 W

Coils (Values are valid at 20 °C)	
Pick-up voltage	$\leq 0.8 \times V_N$
Release voltage AC / DC	$> 0.15 \times V_N / > 0.05 \times V_N$
Nominal power AC / DC	2.5 VA / 1.2 W

Coil Table					
V_N AC	Ω	mA	V_N DC	Ω	mA
24	52	104	12	115	104
48	240	55	24	480	50
115	1350	23	48	1850	26
230	5600	11.5	110	9000	12
			220	29000	7.6

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

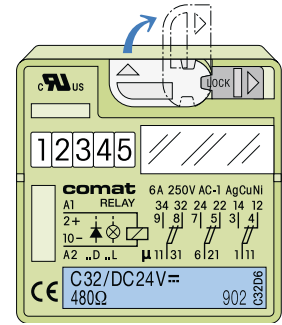
Insulation	
Test voltage open contact	1.5 kVrms, 1 minute
Test voltage between adjacent poles	1.5 kVrms, 1 minute
Test voltage between contacts and coil	2 kVrms, 1 minute

General Specifications	
Ambient temperature operation, storage	-40 ... +70 °C
Pickup time AC / DC	3 ... 10 ms / ≤ 12 ms
Release time AC / DC	2 ... 15 ms / ≤ 3.5 ms
Bounce time NO contact AC / DC	3 ... 6 ms / approx. 3.5 ms
Mechanical life	$\geq 10^8$ operations
Operating frequency at nominal load	≤ 360 operations / h
Ingress Protection degree	IP 40
Weight	80 g

Standard types	
AC 50 Hz / 60 Hz: 24, 48, 115, 230 (240)	C32/AC...V
LED	C32L/AC...V
DC: 12, 24, 48, 110, 220	C32/DC...V
Free wheeling diode	C32D/DC...V
LED + Free wheeling diode	C32DL/DC...V
Railway EN 50155; NF F 16-101/102	C32D/R DC...V

"..." enter the voltage for full type designation

Accessories	
Socket:	EC-11, EC11A, S3-B, S3-S, S3-L, S3-P, S3-PO



Connection diagram

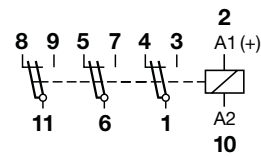


Fig.1 AC voltage endurance

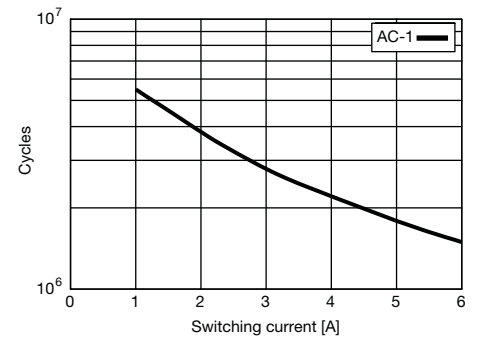
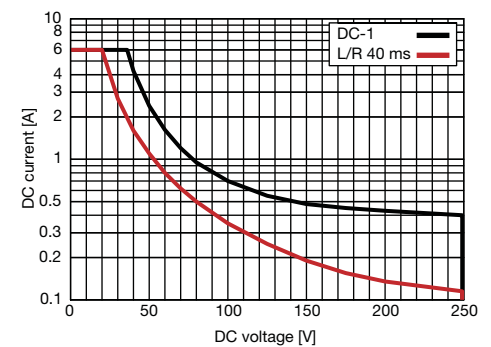
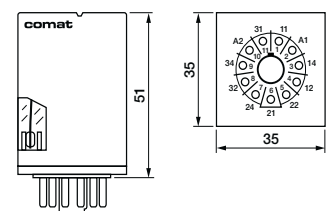


Fig. 2 DC load limit curve



Dimensions [mm]



Technical approvals, conformities

