

FDV – DOKUMENTASJON		Nr.: 042
		Rev.:
		Dato: 5.8.2015
Produktspesifikasjon	Styrekontaktor	
Produktnavn	Serie RL (CL)	
Anvisning for drift	Ingen	
Vedlikehold	Produktet er vedlikeholdsfritt	
Henvisninger Vedlegg	Produktkatalog, dokumentasjon, brukerveiledning og tekniske data	
Produsent	General Electric	
Importør	EFA Elektro AS, Postboks 593, 1411 Kolbotn, Norway Tlf. 66812400 e-mail: post@efa.no - www.efa.no	

EFA Elektro AS



Serviceingeniør vern og startapparater

General

Maximum number of contacts	4
Rated thermal current (I _{th}) θ < 55°C	20A
Rated operational voltage (U _e)	690V
Insulation voltage (U _i)	1000V

Conformity to standards

IEC / EN 60947-1	IEC / EN 60947-5-1	ASE 1025
EN 50005	EN 50011	VDE 0660 / 102
NFC 63-110	NFC 63-140	
CENELEC HD 410	CENELEC HD 420	
NEMA ICS 1	CSA C22.2/14	
UL 508	BS 4794	

Approvals

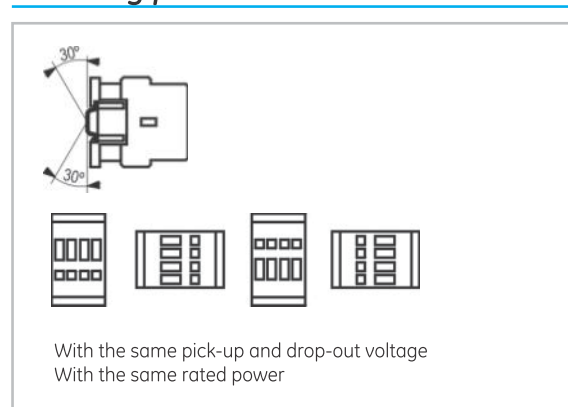
cULus	DEMKO	NEMKO
SEMKO	FI	CE
Lloyd's Register	Bureau Veritas	

Ambient conditions

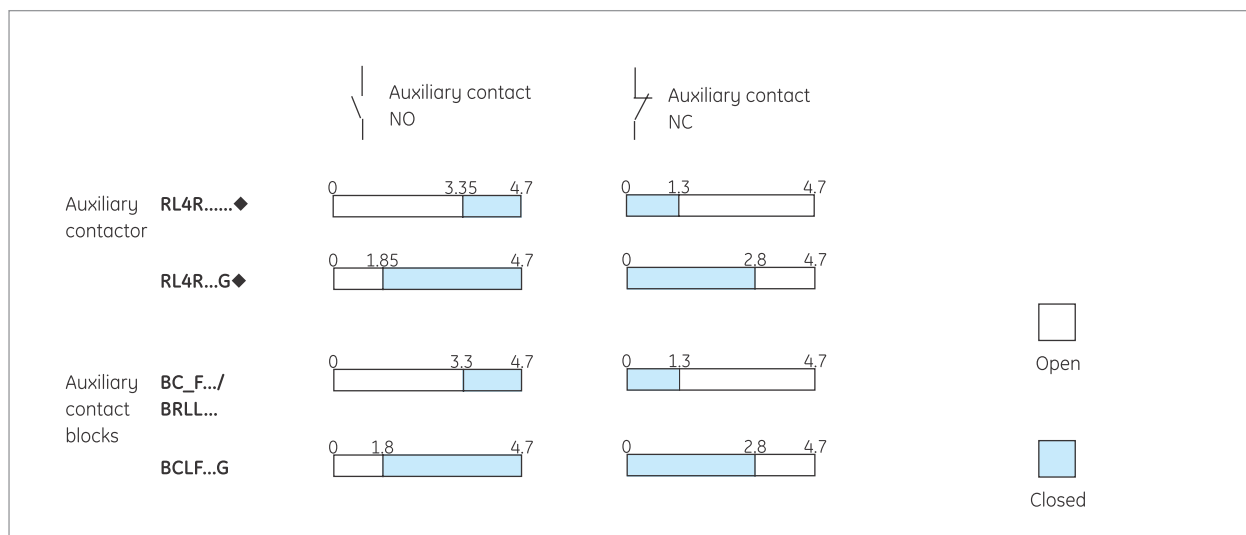
Storage temperature	-55°C to +80°C	
Operation temperature	-40°C to +60°C	
Altitude	up to 3000m	Nominal values
	from 3000 to 4000m	90%I _e 80%U _e
	from 4000 to 5000m	80%I _e 75%U _e

Climatic resistance (IEC 68-2)

Continuous tests	40 / 125 / 56	
Cold (72h)		
Temperature	-40°C	
Dry heat (96h)		
Temperature	+125°C	
Relative humidity	< 50%	
Humid heat (56 days)		
Temperature	+40°C	
Relative humidity	95%	
Cyclical tests (6 cycles)		
Humid heat		
First half-cycle (12h)		
Low temperature	+25°C	
Relative humidity	93%	
Second half-cycle (12h)		
Low temperature	+55°C	
Relative humidity	95%	

Mounting positions**Control circuit**

		RL4RA...	RL4RD...	RL4RD...W
Rated insulation voltage U _i	(V)	1000	1000	1000
Standard voltages U _s				
50Hz (V)		24 ... 690	–	–
60Hz (V)		24 ... 600	–	–
DC	(V)	–	12 ... 440	12 ... 440
Voltage ⁽¹⁾				
Operating limits	xU _s	0.8 ... 1.1	0.8 ... 1.1	0.7 ... 1.3
Pick-up	xU _s	0.65 ... 0.75	0.45 ... 0.65	0.45 ... 0.55
Seal	xU _s	0.4 ... 0.55	0.15 ... 0.3	0.15 ... 0.3
Consumption				
AC Magnetic circuit closed	(VA)	6	–	–
Magnetic circuit open	(VA)	45	–	–
DC Magnetic circuit closed	(W)	–	5.5	6.5
Magnetic circuit open	(W)	–	5.5	6.5
Power dissipation	(W)	2.4	5.5	6.5
Power factor				
Magnetic circuit closed	cos φ	0.34	–	–
Magnetic circuit open	cos φ	0.82	–	–
Opening and closing times				
at 0.8 to 1.1 U _s				
Closing time NO	(ms)	6 ... 25	35 ... 65	25 ... 65
Opening time NO	(ms)	6 ... 13	6 ... 13	6 ... 13
at U _s				
Closing time NO	(ms)	8 ... 20	35 ... 45	25 ... 55
Opening time NO	(ms)	6 ... 13	7 ... 12	6 ... 13
Mechanical endurance	10 ⁶ ops	15	15	15
Maximum rate no load	ops./h	9000	3600	3600

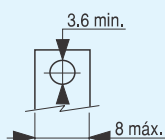
Contact sequence (distance in mm)

Internal auxiliary contacts

	RL4.....
Rated insulation voltage (Ui) acc. IEC 60947-5	1000V
Rated thermal current (Ith) < 55°C	20A
Making capacity (r.m.s.) acc. IEC 60947-5	
AC-15 Ue ≤ 400V, 50/60 Hz	250A
DC-13 Ue ≤ 220V DC	250A
Breaking capacity (r.m.s.) acc. IEC 60947-5	
AC-15 Ue ≤ 400V, 50/60 Hz	250A
DC-13 Ue ≤ 220V DC	2A (4A with 2 contacts in series)
Ue ≤ 110V DC	7A (12A with 2 contacts in series)
Ue ≤ 48V DC	10A (18A with 2 contacts in series)
Rated voltage and rated current Ue-Ie	
AC-15 according to IEC	110/120V - 10A 220/240V - 10A 380/400V - 6A 415/440V - 5A 500V - 4A 660/690V - 2A
according to UL, CSA	A600
DC-13 according to IEC	24V - 6A 48V - 4A 110V - 2A 220V - 0.7A 440V - 0.35A
according to UL, CSA	P600
Electrical endurance	1 × 10 ⁶ ops.
Minimum operational voltage (operational safety)	17V
Minimum operational current	5mA
Short-circuit protection	
max. fus. class gL fuse	20A
without welding	10A
Insulation resistance	
between contacts	> 10 mΩ
between contacts and earth	> 10 mΩ
between input and output	> 10 mΩ
Guaranteed no overlap between NO and NC contacts	
space	1.3 mm
minimum time	1.5 ms
Impedance	1.28 mΩ

Terminal capacity

Solid, stranded and finely stranded without end sleeve	mm ²	2 × 0.5 to 6
Finely stranded with end sleeve	mm ²	2 × 1 to 6
AWG wires, solid and stranded	mm ²	2 × 20 to 12
Tightening torque		1.1 Nm / 10 Lb.in
Ring terminals		1.6 Nm / 15 Lb.in

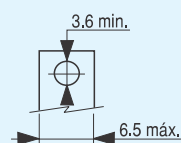


Instantaneous auxiliary contact blocks

	BCLF../BCRF../BRLL..
Rated insulation voltage (Ui) acc. IEC 60947-5	1000V
Rated thermal current (Ith) θ < 55°C	10A
Making capacity (r.m.s.) acc. IEC 60947-5	
AC-15 Ue ≤ 440V, 50/60 Hz	90A
DC-13 Ue ≤ 220V DC	90A
Breaking capacity (r.m.s.) acc. IEC 60947-5	
AC-15 Ue ≤ 400V, 50/60 Hz	60A
DC-13 Ue ≤ 220V DC	0.95A
Rated voltage and rated current Ue-Ie	
AC-15 according to IEC	110/120V - 6A 220/240V - 6A 380/400V - 4A 415/440V - 3.5A 500V - 2.5A 660/690V - 1.5A
according to UL, CSA	A600
DC-13	24V - 4A 48V - 2A 110V - 0.7A 220V - 0.3A 415/440V - 0.15A
according to UL, CSA	Q600
Electrical endurance	1 × 10 ⁶ ops.
Minimum operational voltage (operational safety)	17V
Minimum operational current	5mA
Short-circuit protection (without welding) gL	10A
Insulation resistance	
between contacts	> 10 mΩ
between contacts and earth	> 10 mΩ
between input and output	> 10 mΩ
Guaranteed no overlap between NO and NC contacts	
Space	1.3 mm
minimum time	1.5 ms
Impedance of the contacts	1.28 mΩ

Terminal capacity

Solid, stranded and finely stranded without end sleeve	mm ²	2 × 0.5 to 2.5
Finely stranded with end sleeve	mm ²	2 × 2.5 to 4
AWG wires, solid and stranded	mm ²	2 × 20 to 10
Tightening torque		0.8 Nm / 7 Lb.in
Ring terminals		0.8 Nm / 7 Lb.in

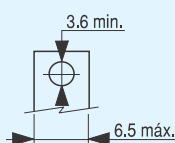


Timed auxiliary contact blocks

	BTLF... / BTRF...
Rated insulation voltage (Ui) acc. IEC 60947-5	1000V
Rated thermal current (Ith) $\theta < 55^{\circ}\text{C}$	10A
Making capacity (r.m.s.) acc. IEC 60947-5	
AC-15 $U_e \leq 440\text{V}$, 50/60 Hz	90A
DC-13 $U_e \leq 220\text{V}$ DC	90A
Breaking capacity (r.m.s.) acc. IEC 60947-5	
AC-15 $U_e \leq 400\text{V}$, 50/60 Hz	60A
DC-13 $U_e \leq 220\text{V}$ DC	0.95A
Rated voltage and rated current U_e -Ie	
AC-15 according to IEC	110/120V - 6A 220/240V - 6A 380/400V - 4A 415/440V - 3.5A 500V - 2.5A 660/690V - 1.5A
DC-13 according to UL, CSA	A600
DC-13 according to IEC	24V - 4A 48V - 2A 110V - 0.7A 220V - 0.3A 415/440V - 0.15A
according to UL, CSA	Q600
Electrical endurance	1×10^6 ops.
Minimum operational voltage (operational safety)	17V
Minimum operational current	5mA
Short-circuit protection (without welding) gL	10A
Insulation resistance	
between contacts	$> 10\text{ M}\Omega$
between contacts and earth	$> 10\text{ M}\Omega$
between input and output	$> 10\text{ M}\Omega$
Guaranteed no overlap between NO and NC contacts	
space	1.3 mm
minimum time	1.5 ms
Timing	
(Ambient temperature between -25 and $+55^{\circ}\text{C}$)	
Accuracy	$\pm 5\%$
Loss of accuracy after 0.5×10^6 ops.	$+20\%$
Loss of accuracy per rise $^{\circ}\text{C}$ ($0 - 55^{\circ}\text{C}$)	$+0.75\%$ per $^{\circ}\text{C}$
Impedance of the contacts	$1.28\text{ m}\Omega$
Mechanical endurance	5×10^6 ops.
Peak current	
during 1 s.	50A
during 0.1 s.	100A

Terminal capacity

Solid, stranded and finely stranded without end sleeve	(mm ²)	2×0.5 to 2.5 2×2.5 to 4
Finely stranded with end sleeve	(mm ²)	2×0.5 to 2.5 2×2.5 to 4
AWG wires, solid and stranded	(mm ²)	2×20 to 10
Tightening torque		0.8 Nm / 7 Lb.in
Ring terminals		0.8 Nm / 7 Lb.in

**Mechanical latch blocks**

	RMLF.....
Rated insulation voltage (Ui)	1000V
Standard voltages (Us); 50-60Hz and direct current	24 ... 690V
Operating limits	0.75 to 1.1 xUs
Consumption for unlatching (auto cut-out)	210W /VA (24-72V) 130W /VA (110-440V)
Unlatching control ⁽¹⁾	
Electrical Min.impuls	10 ms Maintained auto cut-out by integral contact 55-56 (only AC slots)
Manual	By local (0) push-button
Contactor control	
Electrical Min.impuls	40 ms
Manual	By local (I) push-button
Mechanical endurance CL00 ... CL45	3×10^6 (1200ops./h)
CL05 ... CL10	0.1×10^6 (300 ops./h)

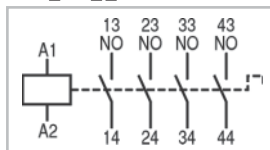
Terminal capacity

Solid, stranded and finely stranded without end sleeve	mm ²	2×0.5 to 2.5 2×2.5 to 4
Finely stranded with end sleeve	mm ²	2×0.5 to 2.5 2×2.5 to 4
AWG wires, solid and stranded	mm ²	2×20 to 10
Tightening torque		0.8 Nm / 7 Lb.in

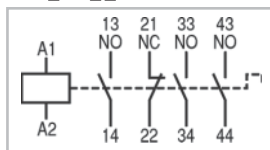
Terminal numbering

Auxiliary contactors

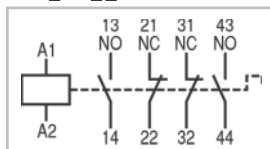
RL4R_040__



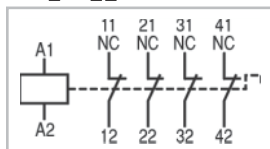
RL4R_031__



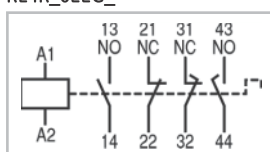
RL4R_022__



RL4R_004__

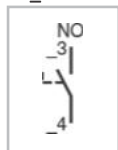


RL4R_022G__

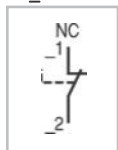


Auxiliary contact blocks. Front mounting

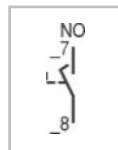
BC_F10



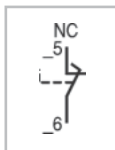
BC_F01



BCLF10G

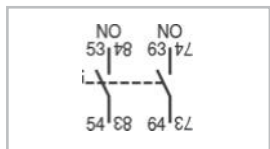


BCLF01G

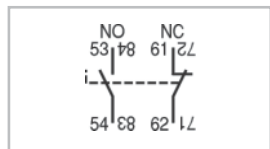


Auxiliary contact blocks. Lateral mounting

BRLL20

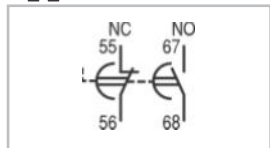


BRLL11

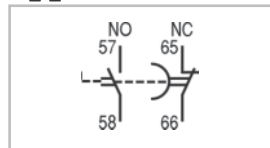


Pneumatic timer blocks

BT_F_C

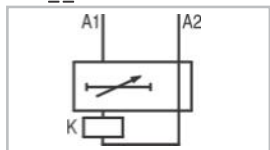


BT_F_D

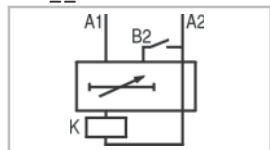


Electronic timer blocks

BETL__C



BETL__D

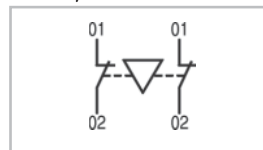


Mechanical (-/electrical) interlock

BELA, BEL

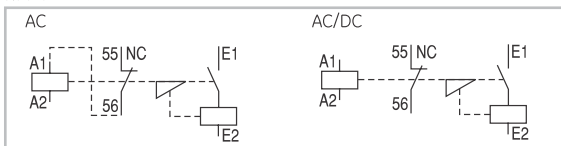


BELA02, BELO2



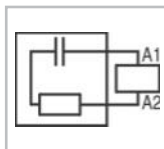
Mechanical latch block

RMLF

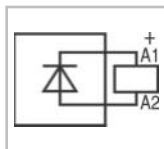


Voltage suppressor blocks

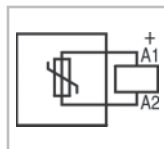
BSLR2



BSLDZ



BSLV3



Terminal numbering in accordance with EN 50011

By combining other basic auxiliary contactors with auxiliary contact blocks BLC..., it is possible to obtain other combinations, and positions of contacts which are not covered by the table. But in all cases the maximum number of additional auxiliary contacts should be four.

Type E

Standard contact combination in which the interchangeability of the devices does not affect the cabling or the diagram. Specifies a particular contact numbering and positioning.

		Final structure of the combination	Auxiliary contacts		Auxiliary contactor +Auxiliary contact blocks to be added
			Combination Description	NO NC	
Type E			40E	4 0	RL4RA040...
			31E	3 1	RL4RA031...
			22E	2 2	RL4RA022...
			04E	0 4	RL4RA004...
			50E	5 0	RL4RA040... + BC_F10
			41E	4 1	RL4RA031... + BC_F10
			32E	3 2	RL4RA022... + BC_F10
			23E	2 3	RL4RA022... + BC_F01
			14E	1 4	RL4RA004... + BC_F10
			05E	0 5	RL4RA004... + BC_F01
			60E	6 0	RL4RA040... + BC_F10 + BC_F10
			51E	5 1	RL4RA040... + BC_F10 + BC_F01
			42E	4 2	RL4RA040... + BC_F01 + BC_F01
			80E	8 0	RL4RA040... + BC_F10 + BC_F10 + BC_F10 + BC_F10
			71E	7 1	RL4RA040... + BC_F10 + BC_F01 + BC_F10 + BC_F10
			62E	6 2	RL4RA040... + BC_F10 + BC_F01 + BC_F01 + BC_F10
			53E	5 3	RL4RA040... + BC_F10 + BC_F01 + BC_F01 + BC_F01
			44E	4 4	RL4RA040... + BC_F01 + BC_F01 + BC_F01 + BC_F01

Terminal numbering in accordance with EN 50011 (continued)

By combining other basic auxiliary contactors with auxiliary contact blocks BLC..., it is possible to obtain other combinations, and positions of contacts which are not covered by the table. But in all cases the maximum number of additional auxiliary contacts should be four.

Type Z

Contact combination the same as Type E.

Interchangeability of the devices may affect the cabling and the diagram. Neither contact numbering nor positioning are retained.

Type Y

Contact combination which differs from Type E, although it is obtained by a combination of devices provided for this Type E.

		Final structure of the combination	Auxiliary contacts		Auxiliary contactor +Auxiliary contact blocks to be added
			Combination	NO NC	
Type Z			60Z	6 0	RL4RA040... + BRL20
			51Z	5 1	RL4RA040... + BRL11
			80Z	8 0	RL4RA040... + BRL20 + BRL20
			71Z	7 1	RL4RA040... + BRL11 + BRL20
			62Z	6 2	RL4RA040... + BRL11 + BRL11
Type Y			42Y	4 2	RL4RA031... + BC_F10 + BC_F01
			42Y	4 2	RL4RA031... + BRL11
			53Y	5 3	RL4RA031... + BC_F10 + BC_F01 + BC_F01 + BC_F10
			44Y	4 4	RL4RA022... + BC_F10 + BC_F01 + BC_F01 + BC_F10
			33Y	3 3	RL4RA022... + BC_F10 + BC_F01
			33Y	3 3	RL4RA022... + BRL11
					RL4RA040... + BTLF...C + BRL20
					RL4RA040... + BTLF...D + BRL20
					RL4RA040... + BTLF...C + BRL11
					RL4RA040... + BTLF...D + BRL11

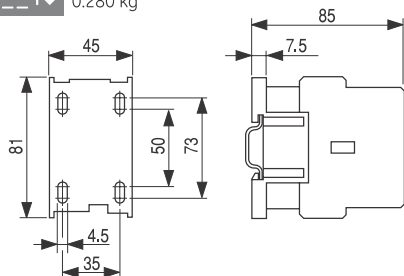
Dimensional drawings

Auxiliary contactors

Screw terminal

AC

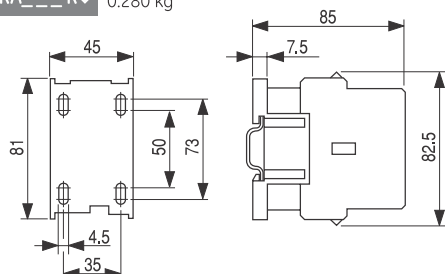
RL4RA___T◆ 0.280 kg



Ring terminal

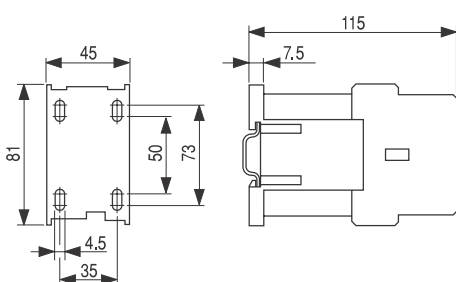
AC

RL4RA___R◆ 0.280 kg



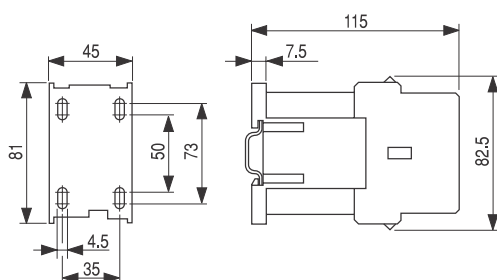
DC

RL4RD___T◆ 0.490 kg



DC

RL4RD___R◆ 0.490 kg

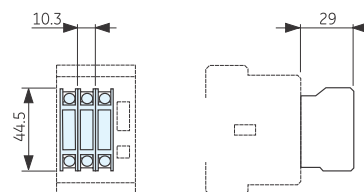


Instantaneous auxiliary contact blocks

Screw terminal

Instantaneous, frontal mounting

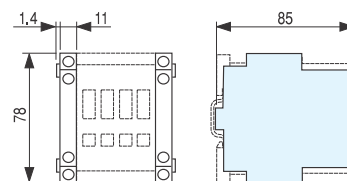
BCLF___ 0.015 kg



Screw terminal

Instantaneous, lateral mounting

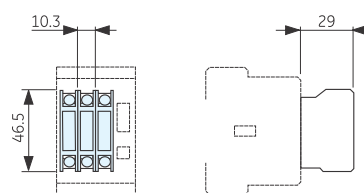
BRLL___ 0.048 kg



Ring terminal

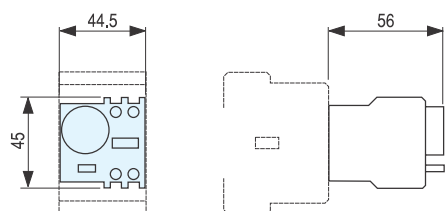
Frontal mounting

BCRF___ 0.015 kg

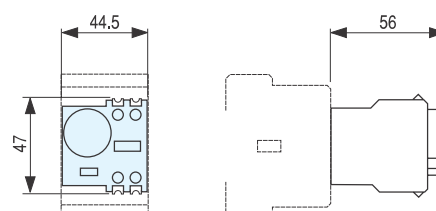
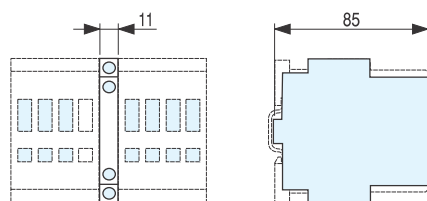


Timed auxiliary contact blocks**Screw terminal****Front mounting**

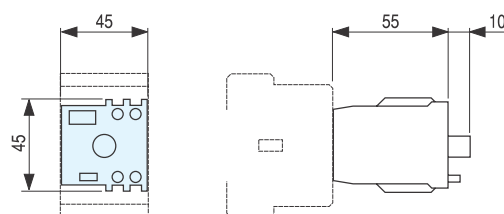
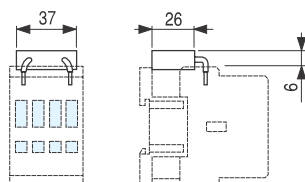
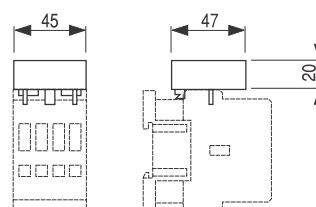
BTLF_ _ _ 0.085 kg

**Ring terminal****Front mounting**

BTRF_ _ _ 0.085 kg

**Mechanical (-/electrical) interlock**BELA 0.025 kg
BELA02 0.025 kg**Mechanical latch block**

RMLF_ _ _ 0.082 kg

**Voltage suppressor blocks**BSLR2_ 0.020 kg
BSLDZ_ 0.020 kg
BSLV3_ 0.020 kg**Electronic timer block**BETL_ _ C 0.040 kg
BETL_ _ D 0.040 kg**Interface**IMR_ 0.060 kg
IMRF_ 0.050 kg
IMSSD 0.045 kg
IMAMS 0.045 kg