

CTX³ Capacitor switching units

Cat. N°(s) : 4 168 74 / 75 / 76 / 77



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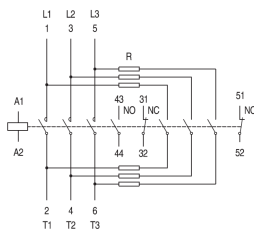
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1. DESCRIPTION - USE

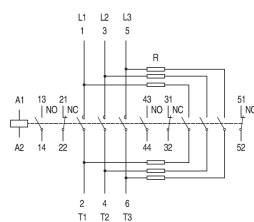
. Auxiliary blocks for capacitors switching are installed directly on CTX³ 3P, 9 to 100 [A] contactors. With their discharge resistors, they reduce current peaks during capacitor banks switching.

Symbol:

. For CTX³ 22 3P 9~22 [A]



. For CTX³ 40 3P 32~40 [A]
. For CTX³ 65 3P 50~65 [A]
. For CTX³ 100 3P 75~100 [A]



Technology:

. Damping resistor.

2. RANGE OF COMPATIBLE CONTACTORS

Number of Poles:

. Triple pole (3P).

Rated current - Ie:

. 9A, 12A, 18A, 22A, 32A, 40A, 50A, 65A, 75A, 85A, 100A.

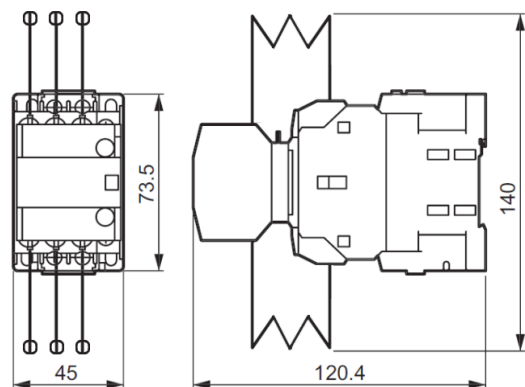
2. RANGE (suite)

Rated Voltage / Frequency:

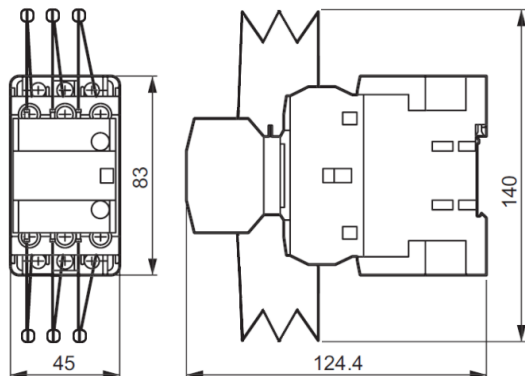
. 690 V, 50 / 60 Hz with standard tolerances.

3. OVERALL DIMENSIONS

. Contactors equipped with CTX³ switching units
Dimension are applicable for AC controlled contactors
- For CTX³ 22 3P 9~22 [A] - cat n° 4 168 74.

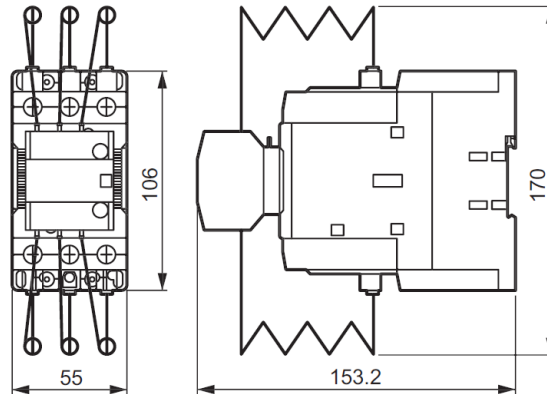


- For CTX³ 40 3P 32~40 [A] - cat n° 4 168 74.

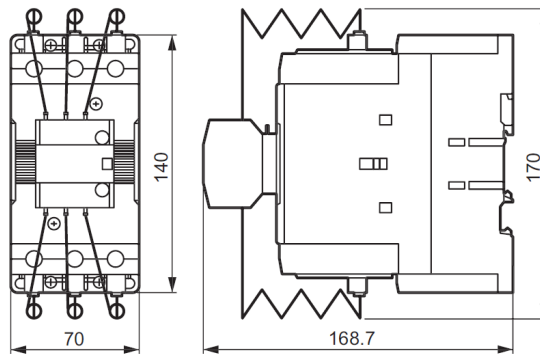


3. OVERALL DIMENSIONS (continued)

. For CTX³ 65 3P 50~65 [A] - cat n° 4 168 75 and 4 168 76.



. For CTX³ 100 3P 75~100 [A] - cat n° 4 168 76 and 4 168 77.



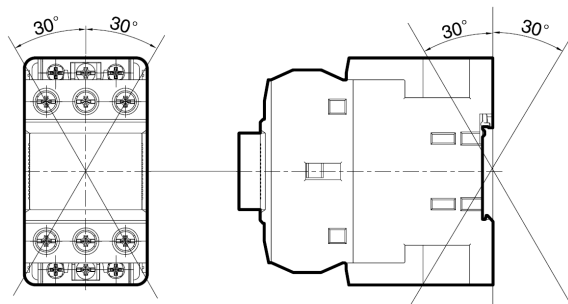
4. INSTALLATION - CONNECTION

Fixing:

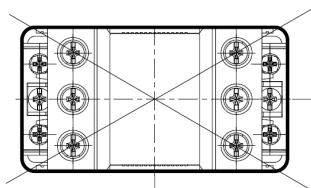
- . Mounting on DIN rail or on plate.
- . 35 [mm] DIN rail for CTX³ 22~CTX³ 100.

Operating position:

- . ± 30 [°] possible, in relation to normal vertical mounting plane.



Particular case: horizontal position















- . In case of horizontal mounting, a derating applies (please consult us)










Supply:

- . Either from the top or the bottom.

4. INSTALLATION - CONNECTION (continued)

Wire size and tightening torque:

Wire type		Main Terminal Size								Torque		
			(AWG / mm ²)							mm(max)	[lb-in]	[Nm]
CTX ³ 22 - 9A		M4	18~10 / 1~6	18~10 / 1~6	18~10 / 1~6				9.6	20	2.25	23
CTX ³ 22 - 12A			18~10 / 1~6	16~10 / 1~6	16~10 / 1~6							
CTX ³ 22 - 18A			18~10 / 1~6	16~8 / 1.5~10	16~8 / 1.5~10							
CTX ³ 22 - 22A			18~10 / 1~6	14~8 / 2.5~10	14~8 / 2.5~10							
CTX ³ 40 - 32A		M5	18~10 / 1~6	8~6 / 10~16	8~6 / 10~16				12.8	20	2.25	23
CTX ³ 40 - 40A			18~10 / 1~6	8~6 / 10~16	8~6 / 10~16					35	4	41
CTX ³ 65 - 50A		M6	-	10~4 / 6~25	10~4 / 6~25				14	35	4	41
CTX ³ 65 - 65A			-	8~3 / 10~35	8~3 / 10~35							
CTX ³ 100 - 75A		M8	-	8~2 / 10~35	8~2 / 10~35				17	45	5.1	52
CTX ³ 100 - 85A			-	8~1/0 / 10~50	8~1/0 / 10~50							
CTX ³ 100 - 100A			-	8~2/0 / 10~70	8~2/0 / 10~70							
CTX ³ 22~100 Aux./Coil		M4	20~14 / 0.5~2.5	18~12 / 0.75~2.5	18~12 / 0.75~2.5				7.6	15	1.75	18

WIRE TYPE									TORQUE	
		(AWG / mm ²)							mm (Max)	[lb-in]
CTX ³ 65		0.75~35 / 18~2	0.75~25 / 18~4	0.75~35 / 18~2	0.75~25 / 18~4	0.75~25 / 18~4	0.75~16 / 18~6	---	35	4
CTX ³ 100		2.5~70 / 12~2	2.5~50 / 12~1	2.5~70 / 12~2	2.5~50 / 12~1	2.5~50 / 12~2	2.5~35 / 10~2	---	45	5.1

Type of conductors:

. Conductor type = 50/75°C Cu-wire only.

Tools required:

- . Pozidriv N°2 screwdriver recommended.
- . Flat screwdriver Ø5 to Ø6 [mm] Maximum.
- . Hexagonal key to CTX³ 100 only (cage terminals).
- . Flat spanner for M6 bolt (CTX³ 65).
- . Flat spanner for M8 bolt (CTX³ 100).

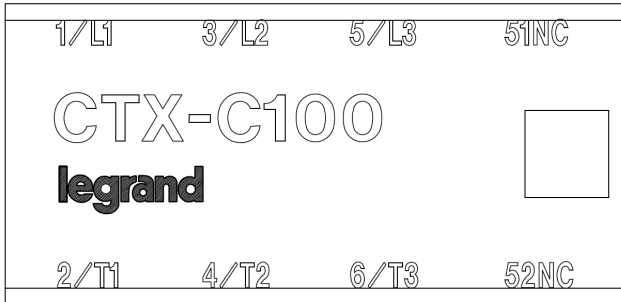
5. GENERAL CHARACTERISTICS

Front side:

. By dark grey laser or pad printing:

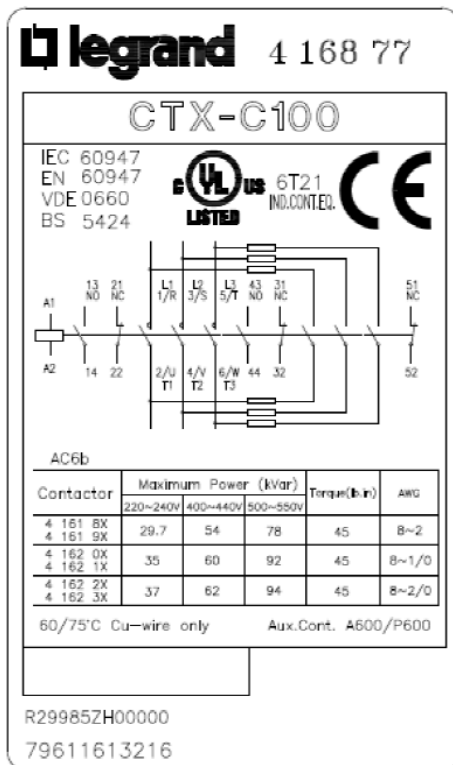
- Brand: Legrand
- Range: CTX-C
- Marking power terminals
- Marking auxiliary terminals

CTX³ Capacitor switching units: (Example of marking)
- For CTX³ 100 3P 75~100 [A] - cat n° 4 168 77.



Left side:

. By identification label (referring to IEC standard)



5. GENERAL CHARACTERISTICS (continued)

Features of capacitor unit: (Pre-loading resistor)

- . Damping resistor that can limit the inrush current up to 60 x I_n by closing earlier than the main contacts of the contactor.
- . Eliminates the switching surge.
- . Improves the performance of the capacitor system.

Operation sequence:

Capacitor unit : OFF
Contactor : OFF

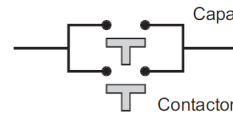


Fig.1

Capacitor unit : ON
Contactor : OFF

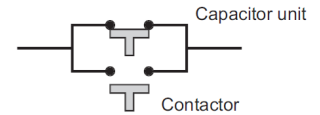


Fig.2

Capacitor unit : OFF
Contactor : ON

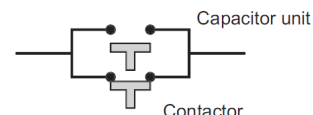


Fig.3

- . Closing sequence:
- Fig.1 => Fig.2 => Fig.3

- . Opening sequence:
- Fig.3 => Fig.1

Rated operational voltage:

. U_e = 690 [V] for all products.

Rated impulse voltage and rated insulation voltage:

Type of products	Rated impulse voltage (U _{imp})	Rated insulation voltage (U _i)
CTX ³ 22	6 [kV]	690 [V]
CTX ³ 40	8 [kV]	1 000 [V]
CTX ³ 65	8 [kV]	1 000 [V]
CTX ³ 100	8 [kV]	1 000 [V]
CTX ³ 150	8 [kV]	1 000 [V]

5. GENERAL CHARACTERISTICS (continued)

Electrical endurance:

Type of products	Electrical durability (operating cycles)	Maxi operating rate in operating cycles per hour
All frames	100 000	120

Weight:

CTX ³ Capacitor switching units	
References	Weight
4 168 74	0.096 [kg]
4 168 75	0.131 [kg]
4 168 76	0.131 [kg]
4 168 77	0.150 [kg]

Ambient operating temperature:

. Min. = -25°C. Max. = +55°C.

Derating of products depending on the ambient temperature:

		Ambient temperature			
		≤ 40 [°C] ≤ 104 [°F]	≤ 55 [°C] ≤ 131 [°F]	≤ 65 [°C] ≤ 149 [°F]	≤ 70 [°C] ≤ 158 [°F]
CTX ³ 3P 22 - 9A	Operational current (AC1) [A]	25	25	20	17
CTX ³ 3P 22 - 12A		25	25	20	17
CTX ³ 3P 22 - 18A		40	40	32	28
CTX ³ 3P 22 - 22A		40	40	32	28
CTX ³ 3P 40 - 32A		50	50	40	35
CTX ³ 3P 40 - 40A		60	60	50	42
CTX ³ 3P 65 - 50A		70	70	56	49
CTX ³ 3P 65 - 65A		100	100	80	70
CTX ³ 3P 100 - 75A		110	110	88	77
CTX ³ 3P 100 - 85A		135	135	108	94
CTX ³ 3P 100 - 100A		160	160	128	112
CTX ³ 3P 150 - 130A		160	160	130	110
CTX ³ 3P 150 - 150A		210	210	170	145

Ambient storage temperature:

. Min. = -50°C. Max. = +80°C.

Indice de protection: (Conformément à la norme IEC 60 529)

. IP20.

5. GENERAL CHARACTERISTICS *(continued)*

Maximum operating altitude:

. 3000 [m].

Déclassement en altitude:

. Coefficients de compensation à des altitudes supérieures à 1000 [m]:

Type	ANSI C37 30-1971			BS2692 PT1-1971/IEC Pub.282-1-1985			
	Rated insulation voltage	Rated current flow of current	Surrounding temperature	Voltage resistance test voltage	Rated insulation voltage	Rated current flow current	Temperature rise
1000	1.00	1.00	1.00	1.0	1.0	1.0	1.0
1200	0.98	0.995	0.992	↑ proportional	↑ proportional	↑ proportional	↑ proportional
1500	0.95	0.99	0.980	1.05	0.95	0.99	0.98
1800	0.92	0.985	0.968	↑ proportional ↓ 1.25	↑ proportional ↓ 0.80	↑ proportional ↓ 0.96	↑ proportional ↓ 0.92
2100	0.89	0.98	0.956				
2400	0.86	0.97	0.944				
2700	0.83	0.965	0.932				
3000	0.80	0.96	0.920				
3600	0.75	0.95	0.896	/	/	/	/
4200	0.70	0.935	0.872				
4800	0.65	0.925	0.848				
5400	0.61	0.91	0.824				
6000	0.56	0.90	0.800				

5. GENERAL CHARACTERISTICS *(continued)*

Rating: In accordance with IEC 60 947-4-1 AC 6b - $\theta \leq 55$ [° C]

. For CTX³ 3P with Capacitor switching units

CTX ³ Capacitor switching units	Type of Contactors	Maximum operating power						Max. peak current
		220 ~ 240 [V]		400 ~ 440 [V]		500 ~ 550 [V]		
		[kVar]	[A]	[kVar]	[A]	[kVar]	[A]	[A]
4 168 74	CTX ³ 22 3P 9 [A]	5	13	9.7	14	14	16	500
	CTX ³ 22 3P 12 [A]	6.7	18	12.5	18	18	21	560
	CTX ³ 22 3P 18 [A]	8.5	22	16.7	24	24	28	850
	CTX ³ 22 3P 22 [A]	10	26	18	26	26	30	1600
	CTX ³ 40 3P 32 [A]	15	39	25	36	36	42	1800
	CTX ³ 40 3P 40 [A]	20	52	33.3	48	48	55	2000
4 168 75 4 168 76	CTX ³ 65 3P 50 [A]	20	52	40	58	58	67	2100
	CTX ³ 65 3P 65 [A]	25	66	45.7	66	66	76	3000
4 168 77	CTX ³ 100 3P 75 [A]	29.7	78	54	78	78	90	3050
	CTX ³ 100 3P 85 [A]	35	92	60	87	92	106	3050
	CTX ³ 100 3P 100 [A]	37	97	62	89	94	109	3050

. When the switch is closed capacitor must be discharged before recharged (Maxi. residual voltage at terminal ≤ 50 [V]).

. To prevent short current, gG type fuse must be 1.5 - 2 times than rated current/

6. CONFORMITIES AND APPROVALS

Compliance to standards:

- . Standards references:
 - IEC/EN 60 947-1
 - IEC/EN 60 947-4-1
 - UL 508.

. Certifications: CE, UL.