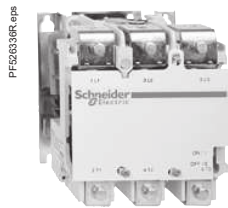


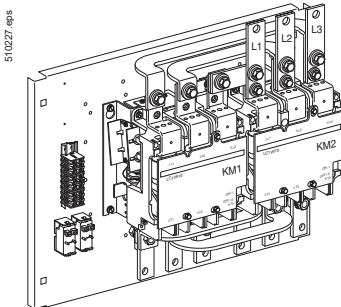
TeSys contactors

TeSys V 3-pole vacuum contactors and reversing contactors AC-3 (160 to 610 A)

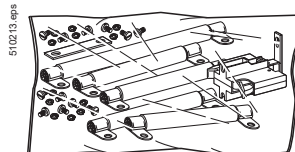
Power and control circuits a.c. supply



LC1 V320



LC2 V610



LA9 V974

Vacuum contactors

Standard power ratings 50/60 Hz in category AC-3					Rated operational current le		Instan- taneous auxiliary contacts		Control circuit voltage (50/60 Hz)	Basic reference ⁽¹⁾	Weight
230 V	400 V	525 V	690 V	1000 V	AC-3 400 V up to	AC-1 400 V up to					kg
kW	kW	kW	kW	kW	A	A					
45	75	110	150	200	160	160	2	1	(1)	LC1V160●●	3.800
90	160	220	280	400	320	320	1	1	(1)	LC1V320●●	10.500
160	300	400	560	800	610	630	1	1	(1)	LC1V610●●	13.000

Reversing vacuum contactors

The reversing contactor range comprises :

- for 160 A rating, a kit with set of power connections allowing assembly of the starter
- for 320 and 610 A ratings, a complete starter, ready for use.

Standard power ratings 50/60 Hz in category AC-3					Rated operational current le		Instan- taneous auxiliary contacts		Control circuit voltage (50/60 Hz)	Basic reference ⁽¹⁾	Weight
230 V	400 V	525 V	690 V	1000 V	AC-3 400 V up to	AC-1 400 V up to					kg
kW	kW	kW	kW	kW	A	A					
45	75	110	150	200	160	160	2	1	—	LA9V974 ⁽²⁾	1.200
90	160	220	280	400	320	320	1	1	110-120 V	LC2V320FE7	30
									220-240 V	LC2V320P7	30
									380-415 V	LC2V320V7	30
160	300	400	560	800	610	630	1	1	110-120 V	LC2V610FE7	36
									220-240 V	LC2V610P7	36

(1) Basic reference; add code indicating control circuit voltage.

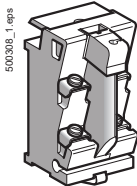
Standard control circuit voltages:

Volts 50/60 Hz	110...120	220...240	380...415	440...480	550...600
Item	FE7	P7	V7	R7	X7

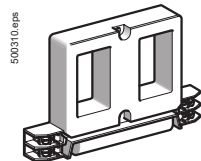
(2) Kit containing a mechanical interlock, a set of power connections and a fixing plate.
To build a complete reversing contactor, order contactors LC1 V160●● separately.

TeSys contactors

TeSys V 3-pole vacuum contactors and reversing contactors AC-3 (160 to 610 A)
Power and control circuits a.c. supply



LA1 VN11



LX1 V320●●

Instantaneous auxiliary contact blocks ⁽¹⁾				
Number of contacts	Maximum number of blocks per contactor	Auxiliary contacts		Reference
2	4			
		1	1	LA1VN11
		–	2	LA1VN02
		2	–	LA1VN20
		1	1	LA1VN11X ⁽²⁾

50/60 Hz coils		
Rated voltage	Voltage code	Reference
V		
For contactors LC1 V160		
110...120	FE7	LX1V160FE7
220...240	P7	LX1V160P7
380...415	V7	LX1V160V7
440...480	R7	LX1V160R7
550...600	X7	LX1V160X7
For contactors LC1 V320		
110...120	FE7	LX1V320FE7
220...240	P7	LX1V320P7
380...415	V7	LX1V320V7
440...480	R7	LX1V320R7
550...600	X7	LX1V320X7
For contactors LC1 V610		
110...120	FE7	LX1V610FE7
220...240	P7	LX1V610P7
380...415	V7	LX1V610V7
440...480	R7	LX1V610R7
550...600	X7	LX1V610X7

(1) LC1 V160: auxiliary contact blocks mounted at the top of the contactor, with no change to the overall dimensions.
LC1 V320 or LC1 V610: 2 auxiliary contact blocks mounted on the RH and LH side of the contactor, with no change to the overall dimensions.
(2) For LC1 V160: 1 N/C contact for the coil + 1 N/O contact.

TeSys contactors

TeSys V 3-pole vacuum contactors and reversing contactors

Selection					
Contactor size			LC1 V160	LC1 V320	LC1 V610
For utilisation category AC-3					
Maximum operational current in AC-3	A		160	320	610
Rated operational power P (standard power ratings of motors)	230 V	kW	45	90	160
	400 V	kW	75	160	300
	525 V	kW	110	220	400
	690 V	kW	150	280	560
	1000 V	kW	200	400	800
	1500 V	kW	280	600	930
For 3-phase motors conforming to CSA standards					
Rated operational power P (standard power ratings of 3-phase CSA motors)	200 V	hp	50	100	150
	240 V	hp	60	125	200
	380 V	hp	100	200	300
	480 V	hp	125	250	400
	600 V	hp	150	300	500
	800 V	hp	200	400	700
	1000 V	hp	250	500	1000
	1500 V	hp	400	800	1300
For switching 3-phase capacitors					
Rated operational power P	240 V	kVAR	47	94	176
	480 V	kVAR	95	190	356
	600 V	kVAR	100	200	400
	1500 V	kVAR	250	500	1000
For switching the primaries of 3-phase transformers (LV/LV)					
Rated operational power P	208 V	kVA	20	41	81
	240 V	kVA	23	47	94
	480 V	kVA	47	94	188
	600 V	kVA	59	117	234

Environment characteristics					
Contactor type			LC1 V160	LC1 V320	LC1 V610
Shock resistance (1/2 sine wave = 11 ms)	Contacts closed		10 gn	10 gn	10 gn
	Contacts open		10 gn	10 gn	10 gn
Vibration resistance	10...500 Hz		2 gn	2 gn	2 gn
Operating altitude	Above sea level	Maximum	m	3600	3600
	Below sea level	Minimum	m	2500	4500
Ambient air temperature around the device	Storage	°C	-40...+80	-40...+80	-40...+80
	Operation 0.8... 1.1 Uc	°C	-5...+55	-5...+55	-5...+55
	Permissible for operation at Uc	°C	-10...+75	-10...+75	-10...+75
Degree of protection	Conforming to IEC 60529		IP 00	IP 00	IP 00
Operating position			Any	Any	Any
Cabling	Cable c.s.a.	mm ²	70	185	2 x 185
	Key for hex. screws	mm	Allen 4	20	20
	Tightening torque	N.m	14	39	39

Control circuit characteristics					
Rated insulation voltage (Ui)	To earth	V	2000	2000	2000
Consumption	Inrush	VA	300	600	1700
	Sealed	VA	30	20	28
Permissible control circuit voltage			0.8...1.1 Uc	0.8...1.1 Uc	0.8...1.1 Uc
Closing time ⁽¹⁾		ms	18...22	24...32	24...32
Opening time ⁽¹⁾		ms	95...115	95...115	95...115

⁽¹⁾ The closing time "C" is measured from the moment the coil supply is switched on to initial contact of the main poles. The opening time "O" is measured from the moment the coil supply is switched off to the moment the main poles separate.

TeSys contactors

TeSys V 3-pole vacuum contactors and reversing contactors

Main pole characteristics				
Contactor type		LC1 V160	LC1 V320	LC1 V610
Rated insulation voltage (Ui)	V	1500	1500	1500
Rated impulse withstand voltage (Uimp)	kV	8	8	8
Conforming to standards		EN 60947-4-1 - IEC 60947-4-1		
Conventional rated thermal current (Ith)	A	160	320	630
Rated operational current (Ie)	$\theta \leq 40^\circ\text{C}$ AC-1	A	160	320
	$\theta \leq 55^\circ\text{C}$ AC-3	A	160	320
	$\theta \leq 55^\circ\text{C}$ AC-4	A	130	270
Electrical durability in millions of operating cycles (400 V at I max)	AC-1		1.2	1
	AC-3		1.6	1.5
	AC-4		0.18	0.15
Mechanical durability	In millions of operating cycles		5	2.5
Maximum operating rate in operating cycles per hour	Mechanical		1200	1200
	AC-1		900	900
	AC-3		900	900
	AC-4		450	450
Maximum making capacity (I _{ms})	U _e = 1500 V To IEC 60947	A	1900	3800
Maximum breaking capacity (I _{ms})	U _e = 1500 V To IEC 60947	A	1600	3200
Maximum permissible current	For 1 s	A	2400	4500
	For 2 s	A	2000	3750
	For 10 s	A	1600	3200
	For 30 s	A	960	1920
Short-circuit protection at I _e in cat. AC-3 max.	aM fuse	A	160	400
Auxiliary contact characteristics				
Rated insulation voltage (Ui)	V	690		
Conventional rated thermal current (Ith)	A	10		
Rated operational current (Ie)	AC-15, 230 V	A	0.78	
	AC-15, 400 V	A	0.45	
	AC-15, 500 V	A	0.35	
	DC-13, 24 V	A	1.1	
	DC-13, 110 V	A	0.24	
	DC-13, 220 V	A	0.12	
Cabling	Cable c.s.a.	mm ²	2.5	
Short-circuit protection	gG fuse	A	10	
Operating time ⁽¹⁾ (at 100 % of U _c)	"C"	ms	±5	
	"O"	ms	±5	

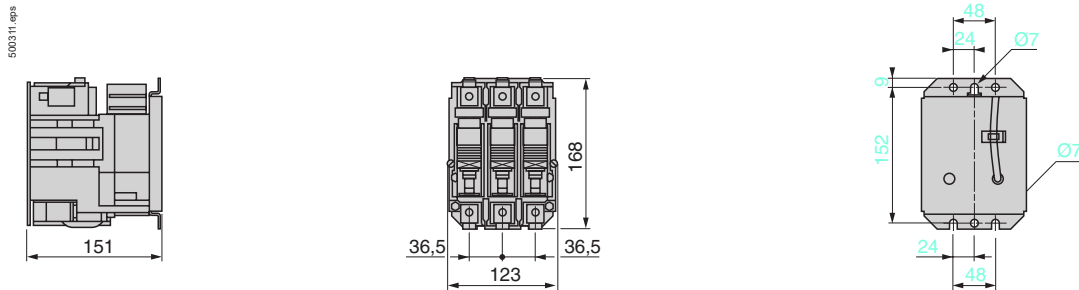
(1) Operating time in relation to the main contacts.

TeSys contactors

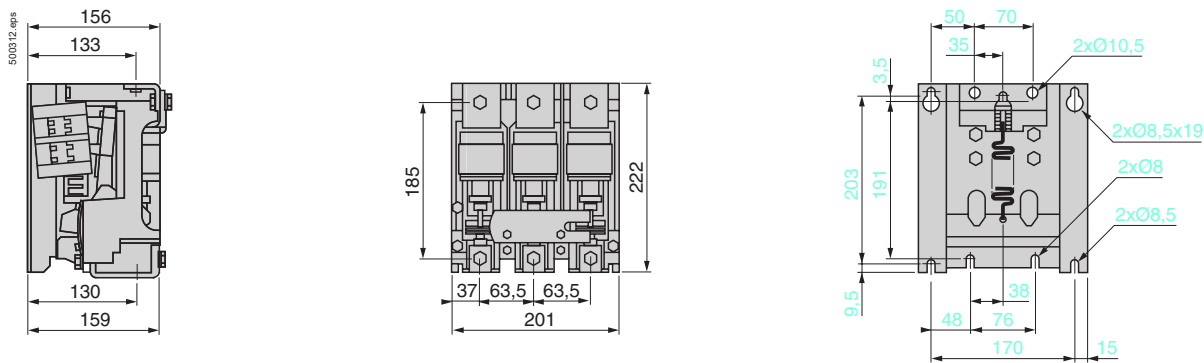
TeSys V 3-pole vacuum contactors

Dimensions, mounting

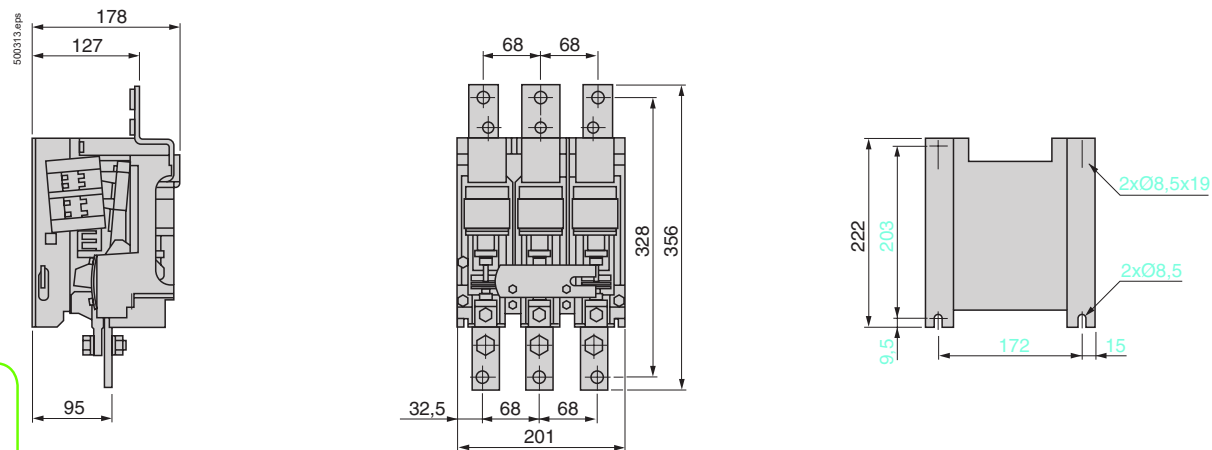
LC1 V160



LC1 V320



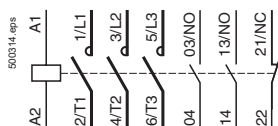
LC1 V610



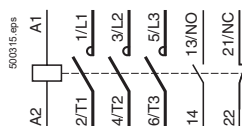
High power contactors

Schemes

LC1 V160

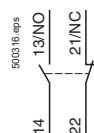


LC1 V320, V610

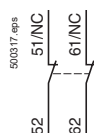


Auxiliary contact blocks

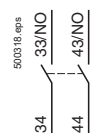
LA1 VN11 1 N/O & 1 N/C



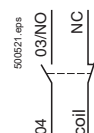
LA1 VN02 2 N/C



LA1 VN20 2 N/O



LA1 VN11X 1 N/O



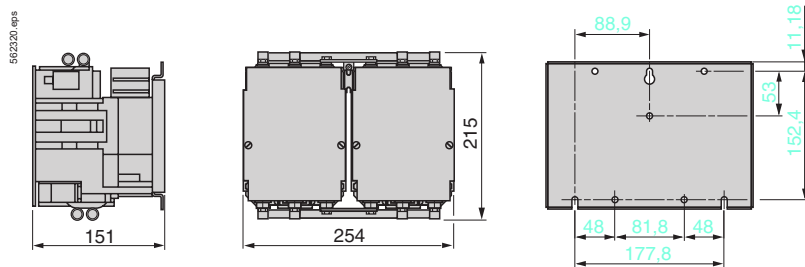
Dimensions, mounting - TeSys V

TeSys reversing contactors

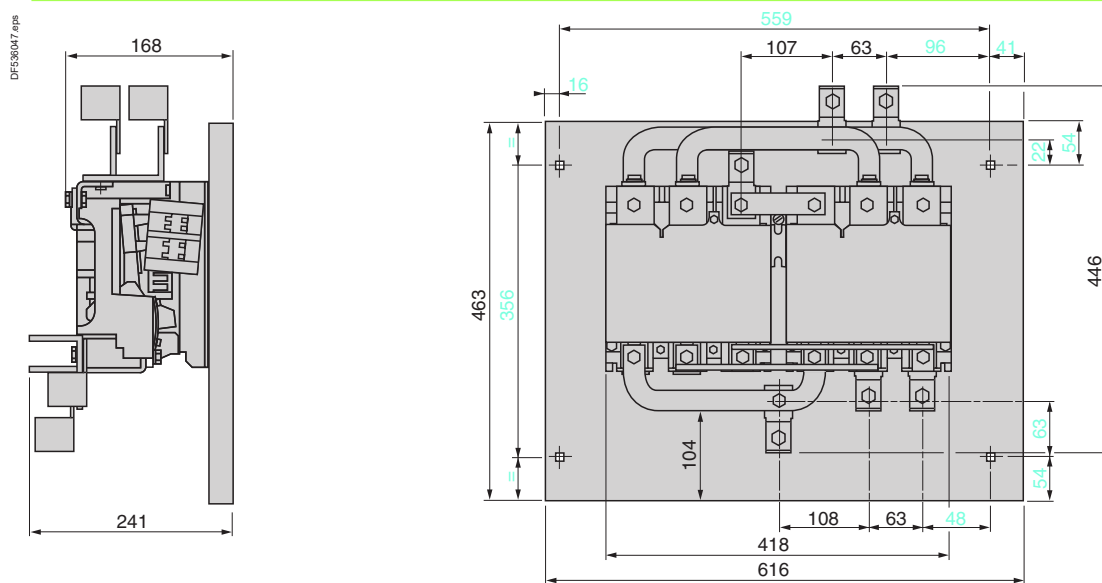
TeSys V 3-pole reversing vacuum contactors

Dimensions, mounting

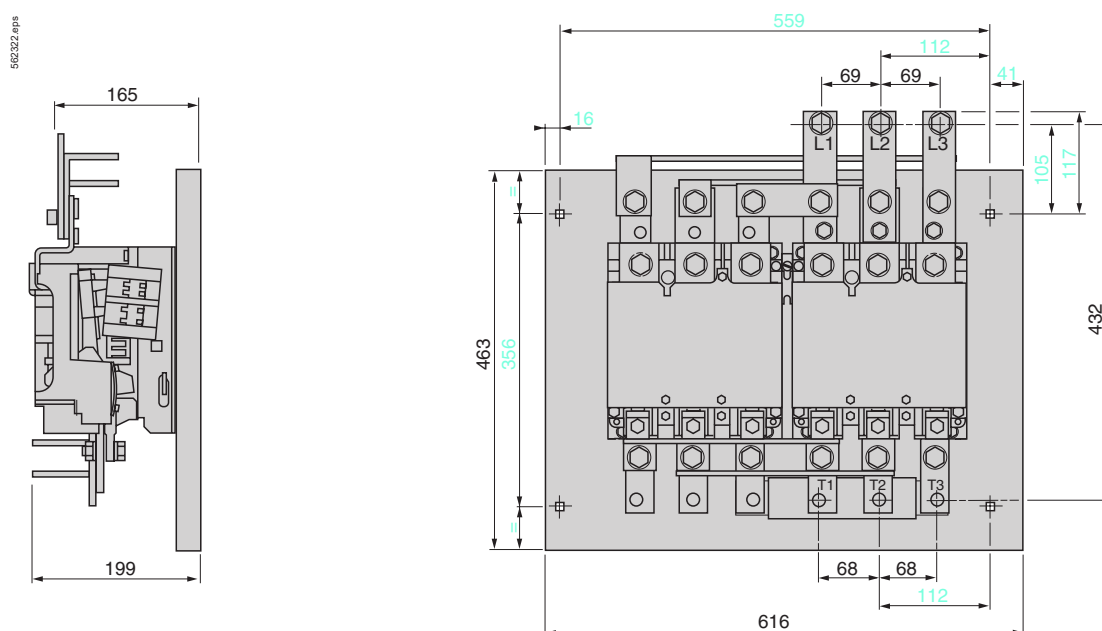
LA9 V974 + 2 x LC1V160



LC2 V320



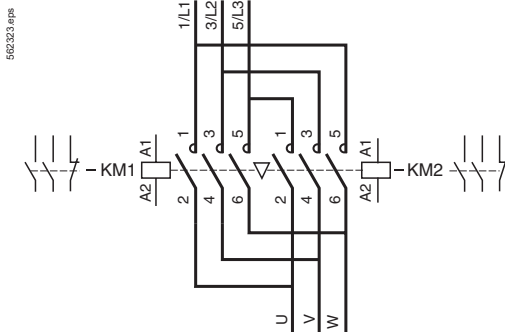
LC2 V610



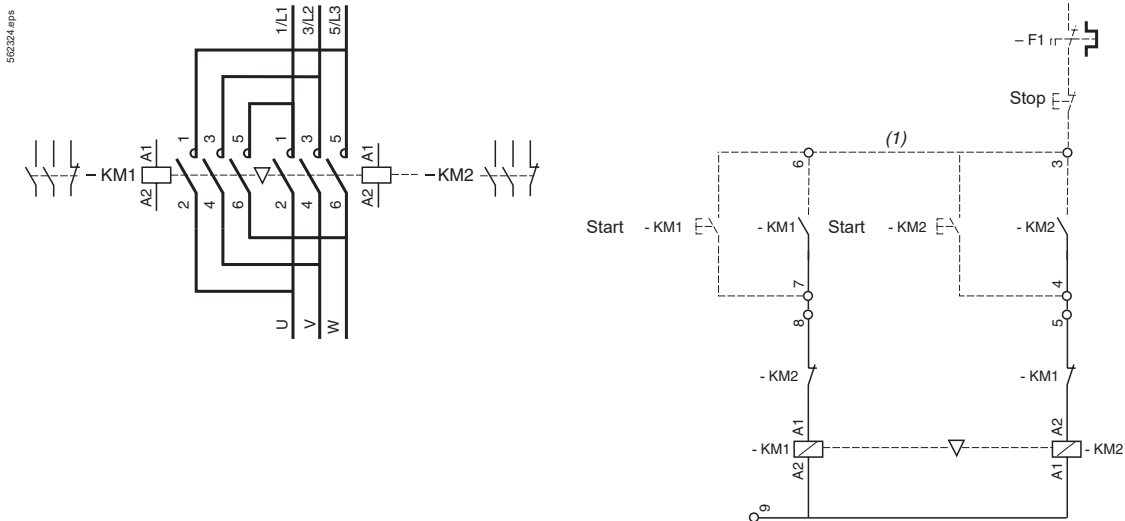
High power
contactors

Schemes

LA9 V974 + 2 x LC1V160



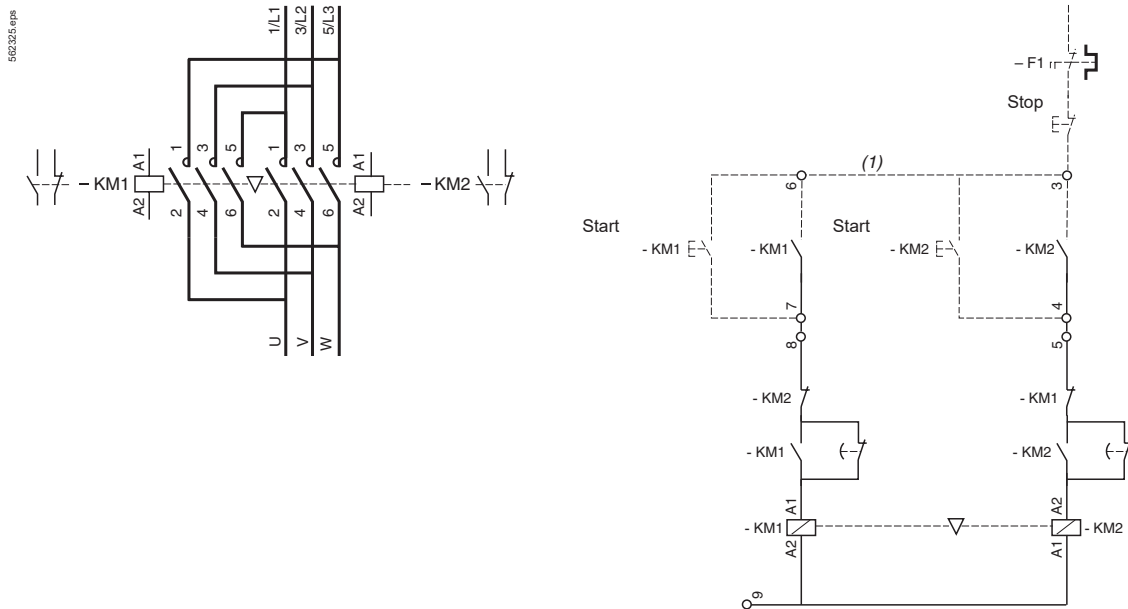
LC2 V320



(1) Dotted line indicates wiring to be installed by the customer.

Schemes

LC2 V610



(1) Dotted line indicates wiring to be installed by the customer.