

Resonant circuit load

RLC xxxx/yy series

Resonant circuit and resistor load

RLC xxxx/yy/SM series

The relating standards:

IEC/EN 62116

VDE 0126-2

VDE 4105

UL 1741

CEI 0-21

IEEE1547.1

RLC TYPE SPECIFICATION:

RLC xxxx/yy

RLC xxxx/yy/SM

xxxx = real power capability

(1000/4000/7000/12500/21000/35000/70000/
100000/150000/175000W)

yy = relation between real power and reactive power
(reactive power = 1.0/2.0/2.1/2.5 times of the real power)

/SM = Sink mode capability

(the RLC can operate as resonant circuit or as resistor load)

- ✓ RLC load with different operation modes:
- ✓ Operation mode RLC enables resonant circuit tests according to IEC/EN 62116:2008-09
DIN V VDE V 0126-1-1:2006-02 (item 6.5.2./anti islanding test).
- ✓ Operation mode "R" increases the sink power of the voltage source (PAS series of 4-Quadrant Amplifiers)
- ✓ Operation mode "free" allows free combinations of R, L and C loads to simulate different load conditions



Fig. 1: RLC load 3x12500var

TECHNICAL DATA – RLC 1000/1.0, RLC 1000/2.5

		RLC 1000/1.0 (/SM)	RLC 1000/2.5 (/SM)
Real power / sink mode power(/SM)¹⁾⁴⁾		50W ... 1000W ²⁾	
Reactive power inductive¹⁾⁴⁾		50var ... 1000var ³⁾	50var ... 2500var ³⁾
Reactive power capacitive¹⁾⁴⁾		50var ... 1000var ³⁾	50var ... 2500var ³⁾
RLC values	<i>R</i>	50Ω ... 10kΩ	50Ω ... 10kΩ
	<i>L</i>	140mH ... 25H	56mH ... 25H
	<i>C</i>	10nF ... 100μF	10nF ... 200μF
Protection		6.3A	
Cooling		Air cooling	
Contactor type		On request	On request
Housing		19"-plug-in units	
	<i>dimensions (mm)</i>	On request	On request
Weight	<i>(approx.)</i>	On request	On request

TECHNICAL DATA – RLC 4000/1.0, RLC 4000/2.5

		RLC 4000/1.0 (/SM)	RLC 4000/2.5 (/SM)
Real power / sink mode power(/SM)¹⁾⁴⁾		50W ... 4000W ²⁾	
Reactive power inductive¹⁾⁴⁾		50var ... 4000var ³⁾	50var ... 10000var ³⁾
Reactive power capacitive¹⁾⁴⁾		50var ... 4000var ³⁾	50var ... 10000var ³⁾
RLC values	<i>R</i>	11Ω ... kΩ	11Ω ... 10kΩ
	<i>L</i>	27.4mH ... 3.37H	13.8mH ... 3.37H
	<i>C</i>	0.1μF ... 300μF	0.1μF ... 700μF
Protection		6.3A	
Cooling		Air cooling	
Housing	<i>dimensions (mm)</i>	1 x 42U, 19"-plug-in units	
	<i>single-phase unit</i>	2120x600x1020	2120x600x1020
	<i>3-phase unit</i>	2120x600x1020	2120x1200x1020
Weight	<i>(approx.)</i>	On request	650kg

TECHNICAL DATA – RLC 7000/1.0, RLC 7000/2.5

		RLC 7000/1.0 (/SM)	RLC 7000/2.5 (/SM)
Real power / sink mode power(/SM)¹⁾⁴⁾		50W ... 7000W ²⁾	
Reactive power inductive¹⁾⁴⁾		50var ... 7000var ³⁾	50var ... 17500var ³⁾
Reactive power capacitive¹⁾⁴⁾		50var ... 7000var ³⁾	50var ... 17500var ³⁾
RLC values	<i>R</i>	7Ω ... 10kΩ	7Ω ... 10kΩ
	<i>L</i>	18.4mH ... 3.37H	8mH ... 3.37H
	<i>C</i>	0.1μF ... 0.6mF	0.1μF ... 1.2mF
Protection		6.3A	
Cooling		Air cooling	
Housing	<i>dimensions (mm)</i>	1 x 42U, 19"-plug-in units	
	<i>single-phase unit</i>	2120x600x1020	2120x600x1020
	<i>3-phase unit</i>	2120x1200x1020	2120x1200x1020
Weight	<i>(approx.)</i>	On request	On request

TECHNICAL DATA – RLC 12500/1.0, RLC 12500/2.5

		RLC 12500/1.0 (/SM)	RLC 12500/2.5 (/SM)
Real power / sink mode power(/SM)¹⁾⁴⁾		50W ... 12500W ²⁾	
Reactive power inductive¹⁾⁴⁾		50var ... 12500var ³⁾	50var ... 31250var ³⁾
Reactive power capacitive¹⁾⁴⁾		50var ... 12500var ³⁾	50var ... 31250var ³⁾
RLC values	<i>R</i>	3.8Ω ... 10kΩ	3.8Ω ... 10kΩ
	<i>L</i>	11.1mH ... 3.37H	4.3mH ... 3.37H
	<i>C</i>	0.1μF ... 0.8mF	0.1μF ... 2.0mF
Protection		6.3A	
Cooling		Water cooling	
Housing	<i>dimensions (mm)</i>	1 x 42U, 19"-plug-in units	
	<i>single-phase unit</i>	2120x600x1020	2120x600x1020
	<i>3-phase unit</i>	2120x1200x1020	2120x1200x1020
Weight	<i>(approx.)</i>	500kg	610kg

TECHNICAL DATA – RLC 21000/1.0, RLC 21000/2.5

		RLC 21000/1.0 (/SM)	RLC 21000/2.5 (/SM)
Real power / sink mode power(/SM)¹⁾⁴⁾		50W ... 21000W ²⁾	
Reactive power inductive¹⁾⁴⁾		50var ... 21000var ³⁾	50var ... 52500var ³⁾
Reactive power capacitive¹⁾⁴⁾		50var ... 21000var ³⁾	50var ... 52500var ³⁾
RLC values	<i>R</i>	2.4Ω ... 10kΩ	2.4Ω ... 10kΩ
	<i>L</i>	6.7mH ... 3.37H	2.8mH ... 3.37H
	<i>C</i>	0.1μF ... 1.4mF	0.1μF ... 3.2mF
Protection		6.3A	
Cooling		Water cooling	
Housing	<i>dimensions (mm)</i>	1 x 42U, 19"-plug-in units	1 x 42U, 19"-plug-in units
	<i>single-phase unit</i>	2120x600x1020	2120x600x1020
	<i>3-phase unit</i>	3 x 42U, 19"-plug-in units 2120x600x1020	3 x 42U, 19"-plug-in units 2120x600x1020
Weight	<i>(approx.)</i>	On request	On request

TECHNICAL DATA – RLC 35000/1.0, RLC 35000/2.5

		RLC 35000/1.0 (/SM)	RLC 35000/2.5 (/SM)
Real power / sink mode power(/SM)¹⁾⁴⁾		50W ... 35000W ²⁾	
Reactive power inductive¹⁾⁴⁾		50var ... 35000var ³⁾	50var ... 87500var ³⁾
Reactive power capacitive¹⁾⁴⁾		50var ... 35000var ³⁾	50var ... 87500var ³⁾
RLC values	<i>R</i>	1.3Ω ... 10kΩ	1.3Ω ... 10kΩ
	<i>L</i>	4mH ... 3.37H	1.6mH ... 3.37H
	<i>C</i>	0.1μF ... 2.4mF	0.1μF ... 5.6mF
Protection		6.3A	
Cooling		Water cooling	
Housing	<i>dimensions (mm)</i>	1 x 46U, 19"-plug-in units	1 x 46U, 19"-plug-in units
	<i>single-phase unit</i>	2320x600x1020	2320x600x1020
	<i>3-phase unit</i>	3 x 46U, 19"-plug-in units 2320x600x1020	3 x 46U, 19"-plug-in units 2320x600x1020
Weight	<i>(approx.)</i>	On request	On request

TECHNICAL DATA – RLC 70000/2.0

		RLC 70000/2.0
Real power / sink mode power(/SM)¹⁾⁴⁾		100W ... 70000W ²⁾
Reactive power inductive¹⁾⁴⁾		100var ... 140000var ³⁾
Reactive power capacitive¹⁾⁴⁾		100var ... 140000var ³⁾
RLC values	<i>R</i>	0.7Ω ... 1kΩ
	<i>L</i>	1.2mH ... 3.37H
	<i>C</i>	1.0μF ... 8.5mF
Protection		6.3A
Cooling		Water cooling
Housing	<i>dimensions (mm) single-phase unit</i>	1 x 42U, 19"-plug-in units 2120x1200x1050
	<i>dimensions (mm) 3-phase unit</i>	3 x 42U, 19"-plug-in units 2120x1200x1050
Weight	<i>(approx.)</i>	On request

TECHNICAL DATA – RLC 100000/1.0, RLC 100000/2.1

		RLC 100000/1.0 (/SM)	RLC 100000/2.1 (/SM)
Real power / sink mode power(/SM)¹⁾⁴⁾		50W ... 100000W ²⁾	
Reactive power inductive¹⁾⁴⁾		50var ... 100000var ³⁾	50var ... 210000var ³⁾
Reactive power capacitive¹⁾⁴⁾		50var ... 100000var ³⁾	50var ... 210000var ³⁾
RLC values	<i>R</i>	0.5Ω ... 10kΩ	0.5Ω ... 10kΩ
	<i>L</i>	1.3mH ... 3.37H	0.64mH ... 3.37H
	<i>C</i>	0.1μF ... 7mF	0.1μF ... 14mF
Protection		6.3A	
Cooling		Water cooling	
Housing	<i>dimensions (mm) single-phase unit</i>	1 x 46U, 19"-plug-in units 2320x1200x1020	1 x 46U, 19"-plug-in units 2320x1800x1020
	<i>dimensions (mm) 3-phase unit</i>	3 x 46U, 19"-plug-in units 2320x1200x1020	3 x 46U, 19"-plug-in units 2320x1800x1020
Weight	<i>(approx.)</i>	On request	On request

TECHNICAL DATA – RLC 150000/1.0, RLC 150000/2.1

		RLC 150000/1.0 (/SM)	RLC 150000/2.1 (/SM)
Real power / sink mode power(/SM)¹⁾⁴⁾		50W ... 150000W ²⁾	
Reactive power inductive¹⁾⁴⁾		50var ... 150000var ³⁾	50var ... 315000var ³⁾
Reactive power capacitive¹⁾⁴⁾		50var ... 150000var ³⁾	50var ... 315000var ³⁾
RLC values	<i>R</i>	0.3Ω ... 10kΩ	0.3Ω ... 10kΩ
	<i>L</i>	0.88mH ... 3.37H	0.44mH ... 3.37H
	<i>C</i>	0.1μF ... 10.4mF	0.1μF ... 22.4mF
Protection		6.3A	
Cooling		Water cooling	
Housing	<i>dimensions (mm) single-phase unit</i>	1 x 46U, 19"-plug-in units 2320x1800x1020	1 x 46U, 19"-plug-in units 2320x1800x1020
	<i>dimensions (mm) 3-phase unit</i>	3 x 46U, 19"-plug-in units 2320x1800x1020	3 x 46U, 19"-plug-in units 2320x1800x1020
Weight	<i>(approx.)</i>	1550kg	On request

TECHNICAL DATA – RLC 175000/1.0, RLC 175000/2.1

		RLC 175000/1.0 (/SM)	RLC 175000/2.1 (/SM)
Real power / sink mode power(/SM)¹⁾⁴⁾		50W ... 175000W ²⁾	
Reactive power inductive¹⁾⁴⁾		50var ... 175000var ³⁾	50var ... 367500var ³⁾
Reactive power capacitive¹⁾⁴⁾		50var ... 175000var ³⁾	50var ... 367500var ³⁾
RLC values	R	0.23Ω ... 10kΩ	0.23Ω ... 10kΩ
	L	0.74mH ... 3.37H	0.35mH ... 3.37H
	C	0.1μF ... 12mF	0.1μF ... 24.6mF
Protection		6.3A	
Cooling		Water cooling	
Housing	<i>dimensions (mm) single-phase unit</i>	1 x 46U, 19"-plug-in units 2320x1800x1020	1 x 46U, 19"-plug-in units 2320x1800x1020
		1 x 46U, 19"-plug-in units 2320x600x1020	1 x 46U, 19"-plug-in units 2320x600x1020
	<i>dimensions (mm) 3-phase unit</i>	3 x 46U, 19"-plug-in units 2320x1800x1020	3 x 46U, 19"-plug-in units 2320x1800x1020
		3 x 46U, 19"-plug-in units 2320x600x1020	3 x 46U, 19"-plug-in units 2320x600x1020
Weight	(approx.)	On request	On request

TECHNICAL DATA – GENERAL

		RLC all series
Nominal voltage	AC	230V _{rms}
Frequency range		50Hz ... 60Hz
Trigger output		5V, digital – low (S1 closed) / high (S1 opened)
Operation modes		manual / remote software
Monitoring instrument ranges	U	50V ... 270V
	f	45Hz ... 65Hz
	P	0 ... max. nominal real power
	Q	0 ... max. nominal reactive power
Contactor type		Harting plugs
Power supply (±10%, 50Hz ... 60Hz)		230V _{rms}
Housing		colour light grey (RAL7035)
Interface		IEEE488
Ambient temperature		0°C up to 40°C

Remarks:

- 1) only with RLC types xxxx/yy/SM
- 2) Resolution 50W
- 3) Resolution 50var
- 4) At 230V 50/60Hz

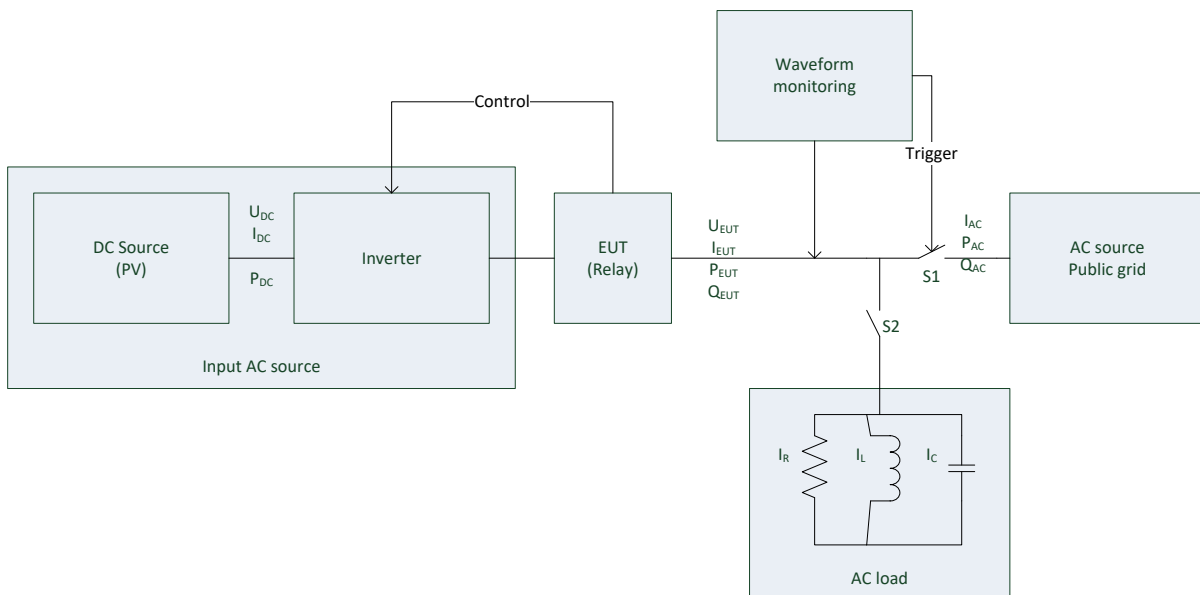


Fig. 2: Test setup according to IEC/EN 62116

“THE UNIVERSAL AC LOAD FOR SIMULATION AND TESTING”