

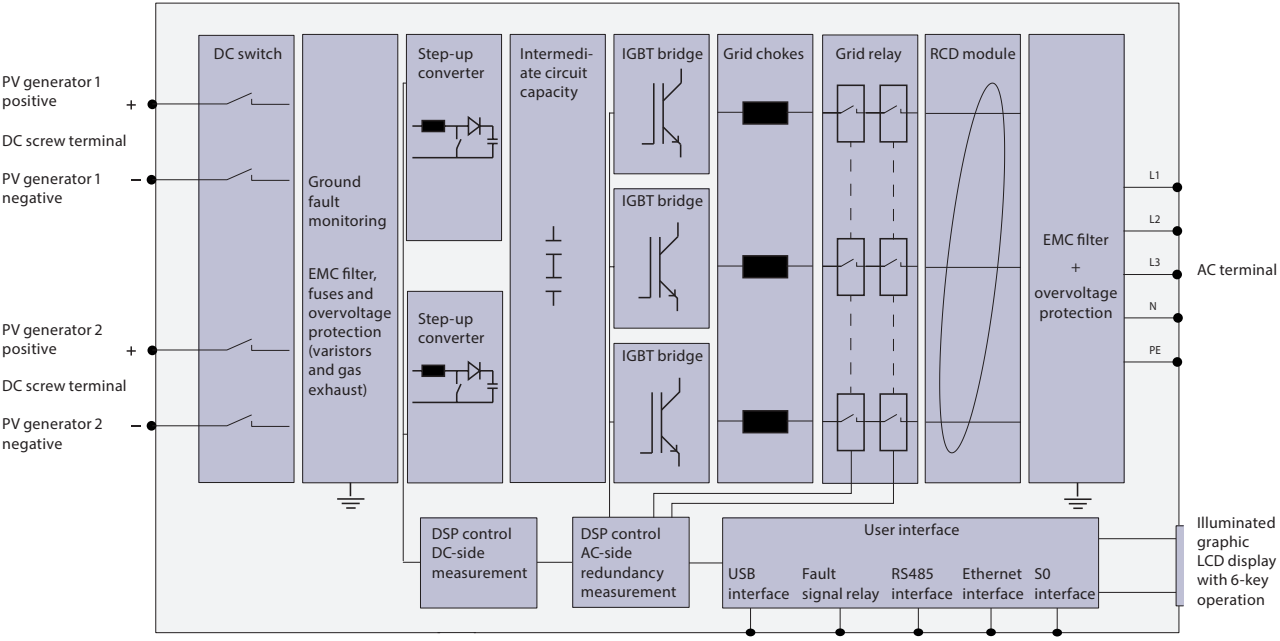
Declaration of conformity for generator unit		2014-0604
Manufacturer's name and address	KACO new energy GmbH Carl-Zeiss-Str. 1 74172 Neckarsulm, Germany	
Product description	Photovoltaic feed-in inverter	
Type designation	Powador 6.0 TL3 - INT - A Powador 7.8 TL3 - INT - A Powador 9.0 TL3 - INT - A Powador 10.0 TL3 - INT - A	Powador 9.0 TL3 - INT Powador 10.0 TL3 - INT Powador 12.0 TL3 - INT Powador 14.0 TL3 - INT Powador 18.0 TL3 - INT Powador 20.0 TL3 - INT
Software version from	ARM: V1.26 / DSP-AC: V1.20 / DSP-DC: V1.24 (Powador 10.0 - 18.0 TL3 - INT) ARM: V1.58 / DSP-AC: V1.40 / DSP-DC: V1.40 (Powador 9.0 TL3 - INT) ARM: V2.06 / DSP-AC: V1.49 / DSP-DC: V1.46 (Powador 6.0-10.0 TL3 - INT - A) ARM: V2.16 / DSP-AC: V1.58 / DSP-DC: V1.54 (Powador 20.0 TL3 - INT)	
VDE Code of Practice	VDE-AR-N 4105 "Generators connected to the low-voltage distribution network" Minimum technical requirements for connection and parallel operation of generators in the low-voltage distribution network, version 2011-08	

The above generator units meet the requirements of the Directive VDE-AR-N 4105, version 2011-08.

Setting values and shutdown times of overfrequency protection:

Inverter type	max. active power $P_{E_{max}}$	max. reactive power $S_{E_{max}}$	Nominal voltage	Threshold value/shutdown time overfrequency protection
Powador 6.0 TL3 - INT - A	5.11 kW	5.27 kVA	230 V / 400 V	51.5 Hz / 0.2 s
Powador 7.8 TL3 - INT - A	6.65 kW	6.84 kVA	230 V / 400 V	51.5 Hz / 0.2 s
Powador 9.0 TL3 - INT - A	7.64 kW	7.84 kVA	230 V / 400 V	51.5 Hz / 0.2 s
Powador 10.0 TL3 - INT - A	9.38 kW	9.39 kVA	230 V / 400 V	51.5 Hz / 0.2 s
Powador 9.0 TL3 - INT	7.50 kW	7.51 kVA	230 V / 400 V	51.5 Hz / 0.2 s
Powador 10.0 TL3 - INT	9.20 kW	9.21 kVA	230 V / 400 V	51.5 Hz / 0.2 s
Powador 12.0 TL3 - INT	10.22 kW	10.61 kVA	230 V / 400 V	51.5 Hz / 0.2 s
Powador 14.0 TL3 - INT	12.79 kW	12.95 kVA	230 V / 400 V	51.5 Hz / 0.2 s
Powador 18.0 TL3 - INT	15.08 kW	15.70 kVA	230 V / 400 V	51.5 Hz / 0.2 s
Powador 20.0 TL3 - INT	17.60 kW	17.95 kVA	230 V / 400 V	51.5 Hz / 0.2 s

Schematic structure of generator unit:



Neckarsulm, 04/06/2014
 KACO new energy GmbH



p.p. Matthias Haag
 Member of the Executive Board for Technology / CTO



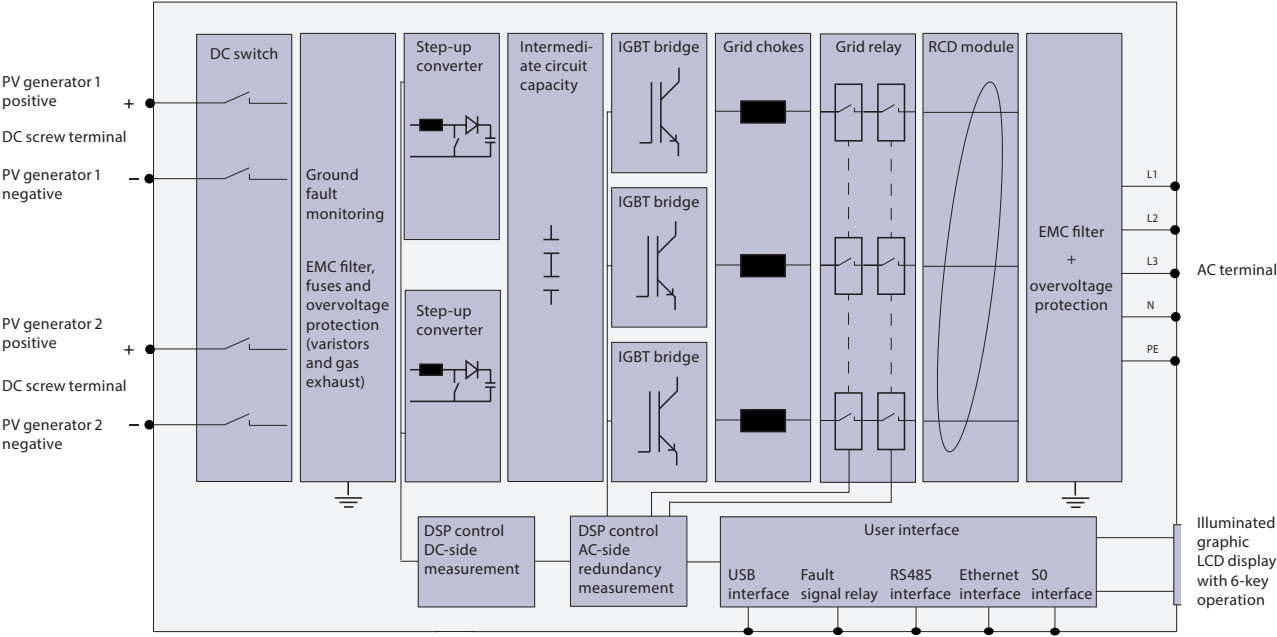
Declaration of conformity for grid and system protection		2014-0604
Manufacturer's name and address	KACO new energy GmbH Carl-Zeiss-Str. 1 74172 Neckarsulm, Germany	
Type designation	Internal grid and system protection	
Assigned to GU of the models	Powador 6.0 TL3 - INT - A Powador 7.8 TL3 - INT - A Powador 9.0 TL3 - INT - A Powador 10.0 TL3 - INT - A	Powador 9.0 TL3 - INT Powador 10.0 TL3 - INT Powador 12.0 TL3 - INT Powador 14.0 TL3 - INT Powador 18.0 TL3 - INT Powador 20.0 TL3 - INT
Software version from	ARM: V1.26 / DSP-AC: V1.20 / DSP-DC: V1.24 (Powador 10.0 - 18.0 TL3 - INT) ARM: V1.58 / DSP-AC: V1.40 / DSP-DC: V1.40 (Powador 9.0 TL3 - INT) ARM: V2.06 / DSP-AC: V1.49 / DSP-DC: V1.46 (Powador 6.0-10.0 TL3 - INT - A) ARM: V2.16 / DSP-AC: V1.58 / DSP-DC: V1.54 (Powador 20.0 TL3 - INT)	
VDE Code of Practice	VDE-AR-N 4105 "Generators connected to the low-voltage distribution network" Minimum technical requirements for connection and parallel operation of generators in the low-voltage distribution network, version 2011-08	

The above grid and system protection meets the requirements of VDE AR-N 4105, Version 2011-08.

Setting values and response times of protective functions:

Function	Setting values	Response times
Voltage increase protector $U_{>>}$	$1.15 U_n$	100 ms
Voltage increase protector $U_{>}$	$1.10 U_n$	100 ms
Voltage drop protector $U_{<}$	$0.80 U_n$	100 ms
Frequency increase protector $f_{>}$	51.50 Hz	100 ms
Frequency drop protector $f_{<}$	47.50 Hz	100 ms
Islanding detection	---	< 5 s

Schematic structure of generator unit:



Neckarsulm, 04/06/2014
 KACO new energy GmbH



p.p. Matthias Haag
 Member of the Executive Board for Technology / CTO