Quattro Inverter/Charger

3kVA - 15kVA Lithium Ion battery compatible www.victronenergy.com



Quattro
48/5000/70-100/100



Quattro
48/15000/200-100/100



Ekrano GX or Cerbo GX
Provides intuitive system control and monitoring and enables access to our free remote monitoring website: the VRM Online Portal.

Two AC inputs with integrated transfer switch
The Quattro can be connected to two independent AC sources, for example the public grid and a generator, or two generators. The Quattro will automatically connect to the active source.

Two AC Outputs
The main output has no-break functionality. The Quattro takes over the supply to the connected loads in the event of a grid failure or when shore/generator power is disconnected. This happens so fast (less than 20 milliseconds) that computers and other electronic equipment will continue to operate without disruption.
The second output is live only when AC is available on one of the inputs of the Quattro. Loads that should not discharge the battery, like a water heater for example, can be connected to this output.

Split phase option
A split phase AC source can be obtained by connecting our autotransformer (see data sheet on www.victronenergy.com) to a 'European' inverter programmed to supply 240 V / 60 Hz.

Three phase capability
Three units can be configured for three phase output. But that's not all: up to 4 sets of three 15 kVA units can be parallel connected to provide 144 kW / 180 kVA inverter power and 2400 A charging capacity.

PowerControl – Dealing with limited generator, shore side or grid power
The Quattro is a very powerful battery charger. It will therefore draw a lot of current from the generator or shore side supply (16 A per 5 kVA Quattro at 230 VAC). A current limit can be set on each AC input. The Quattro will then take account of other AC loads and use whatever is spare for charging, thus preventing the generator or mains supply from being overloaded.

PowerAssist – Boosting shore or generator power
This feature takes the principle of PowerControl to a further dimension allowing the Quattro to supplement the capacity of the alternative source. Where peak power is so often required only for a limited period, the Quattro will make sure that insufficient mains or generator power is immediately compensated for by power from the battery. When the load reduces, the spare power is used to recharge the battery.

Solar energy: AC power available even during a grid failure
The Quattro can be used in off grid as well as grid connected PV and other alternative energy systems.
Loss of mains detection software is available.

System configuring
- In case of a stand-alone application, if settings have to be changed, this can be done in a matter of minutes with a DIP switch setting procedure.
- Parallel and three phase applications can be configured with VE.Bus Quick Configure and VE.Bus System Configurator software.
- Off grid, grid interactive and self-consumption applications, involving grid-tie inverters and/or MPPT Solar Chargers can be configured with Assistants (dedicated software for specific applications).

On-site Monitoring and control
Several options are available: Battery Monitor, Multi Control Panel, Cerbo GX or other GX devices, smartphone or tablet (Bluetooth Smart), laptop or computer (USB or RS232).

Remote Monitoring and control
Cerbo GX or other GX devices.
Data can be stored and displayed on our VRM (Victron Remote Management) website, free of charge.

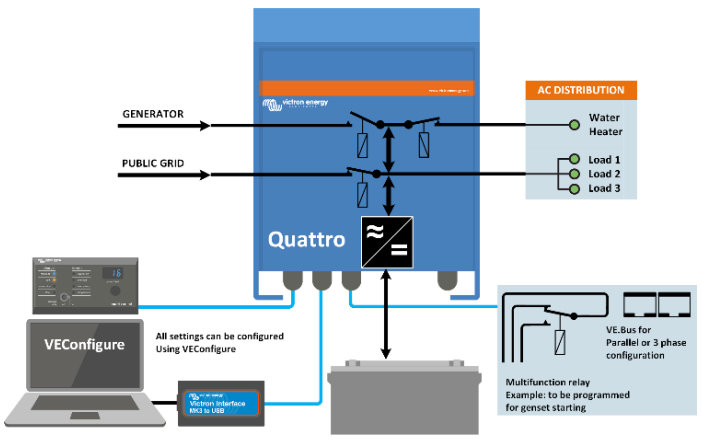
Remote configuring
When connected to the Ethernet, systems with a Cerbo GX or other GX device can be accessed and settings can be changed remotely.



VRM Portal
Our free remote monitoring website (VRM) will display all system data in a comprehensive graphical format. System settings can be changed remotely via the portal. Alarms can be received by e-mail or push notification.



VRM app
Monitor and manage your Victron Energy system from your smart phone and tablet. Available for both iOS and Android.



Quattro	12/3000/120-50/50 24/3000/70-50/50	12/5000/220-100/100 24/5000/120-100/100 48/5000/70-100/100	24/8000/200-100/100 48/8000/110-100/100	48/10000/140-100/100	48/15000/200-100/100
Nominal Battery Voltage	12/3000: 12 V battery 24/3000: 24 V battery	12/5000: 12 V battery 24/5000: 24 V battery 48/5000: 48 V Batttery	24/8000: 24 V battery 48/8000: 48 V battery	48 V battery	
PowerControl / PowerAssist	Yes				
Integrated Transfer switch	Yes				
AC inputs (2x)	Input voltage range: 187-250 VAC Input frequency: 50/60 Hz Cos Φ >0.8				
Maximum feed through current (A)	2x 50	2x100	2x100	2x100	2x100
ICw	6 kA 30 mS	10 kA 30 ms			
INVERTER					
Input voltage range (VDC)	9,5 – 17 V 19 – 33 V 38 – 60 V				
Output [1]	Output voltage: 230 VAC ± 2 % Frequency: 50 Hz ± 0,1 %				
Cont. output power at 25 °C (VA) [3]	3000	5000	8000	10000	15000
Cont. output power at 25 °C (W)	2400	4000	6400	8000	12000
Cont. output power at 40 °C (W)	2200	3700	5500	6500	10000
Cont. output power at 65 °C (W)	1700	3000	3600	4500	7000
Peak power (W)	6000	10000	16000	20000	25000
Input current (A DC)	250 / 125	458/238/118	381/188	235	350
Maximum continuous Output current (A~)	11	19	30	37	53/50
Power factor range	±0.8	±0.8	±0.8	±0.8	±0.8
Maximum output fault current	32 A peak 1 sec.	53 A 1 sec.	100 A 1 sec	100 A 1 sec	150 A 1 sec
Maximum efficiency (%)	93 / 94	94 / 94 / 95	94 / 96	96	96
Zero load power (W)	20 / 20	30 / 30 / 35	60 / 60	60	110
Zero load power in AES mode (W)	15 / 15	20 / 25 / 30	40 / 40	40	75
Zero load power in Search mode (W)	8 / 10	10 / 10 / 15	15 / 15	15	20
CHARGER					
Charge voltage 'absorption' (VDC)	14,4 / 28,8	14,4 / 28,8 / 57,6	28,8 / 57,6	57,6	57,6
Charge voltage 'float' (VDC)	13,8 / 27,6	13,8 / 27,6 / 55,2	27,6 / 55,2	55,2	55,2
Storage mode (VDC)	13,2 / 26,4	13,2 / 26,4 / 52,8	26,4 / 52,8	52,8	52,8
Charge current house battery (A) [4]	120 / 70	220 / 120 / 70	200 / 110	140	200
Charge current starter battery (A)	4 (12 V and 24 V models only)				
Battery temperature sensor	Not included with 48V models. Order number: ASS000001000				
GENERAL					
Auxiliary output (A) [5]	25	50	50	50	50
Programmable relay [6]	3x	3x	3x	3x	3x
Protection [2]	a-g				
VE.Bus communication port	For parallel and three phase operation, remote monitoring and system integration				
General purpose com. port	2x	2x	2x	2x	2x
Remote on-off	Yes				
Common Characteristics	Operating temp.: -20 to +60 °C Humidity (non-condensing): max. 95 %				
Maximum altitude	2000 m				
ENCLOSURE					
Common Characteristics	Material & Colour: aluminium (blue RAL 5012) Protection category: IP20, pollution degree 2, OVC III				
Battery-connection	Four M8 bolts (2 plus and 2 minus connections)				
230 VAC-connection	Screw terminals 13 mm² (6 AWG)	Bolts M6	Bolts M6	Bolts M6	Bolts M6
Weight (kg)	19	34 / 30 / 30	45 / 41	51	72
Dimensions (hxwxd in mm)	364 x 295 x 221	470 x 350 x 280 444 x 328 x 240 444 x 328 x 240	470 x 350 x 280	470 x 350 x 280	572 x 488 x 344
STANDARDS					
Safety	EN-IEC 60335-1, EN-IEC 60335-2-29, EN-IEC 62109-1				
Emission, Immunity	EN 55014-1, EN 55014-2, EN-IEC 61000-3-2, EN-IEC 61000-3-3, IEC 61000-6-1, IEC 61000-6-2, IEC 61000-6-3				
Road vehicles	12 V and 24 V models: ECE R10-4				
Anti-islanding	See our website				

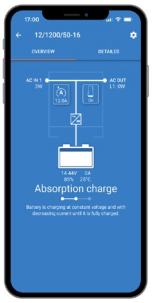
1) Can be adjusted to 60 HZ. 120 V models available on request
2) Protection key:
a) output short circuit
b) overload
c) battery voltage too high
d) battery voltage too low
e) temperature too high
f) 230 VAC on inverter output
g) input voltage ripple too high

3) Non-linear load, crest factor 3:1
4) Up to 25 °C ambient
5) Switches off when no external AC source available
6) Programmable relay that can a.o. be set for general alarm,
DC under voltage or genset start/stop function
AC rating: 230 V / 4 A
DC rating: 4 A up to 35 VDC, 1 A up to 60 VDC













Digital Multi Control Panel
A convenient and low-cost solution for monitoring and control. With an on/off charger-only switch, full LED readout and a rotary knob to set PowerControl and PowerAssist levels.

VE.Bus Smart Dongle
For monitoring and control via Bluetooth together with the VictronConnect app. It also measures battery voltage and temperature.

Interface MK3-USB
Needed to configure the MultiPlus, Can be used with the VictronConnect app or VE.Configure software. The interface connects to the MultiPlus via an RJ45 UTP cable and plugs into a USB port.

VictronConnect app
Use to monitor or configure the MultiPlus using your phone tablet or PC.

Battery Monitor
To monitor battery state of charge via Bluetooth or the VRM portal. The BMV 712 Smart has display, while the SmartShunt does not have a display. Both communicate via Bluetooth and have a VE.Direct communication port.

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ESS application: Quattro 48V/8-10-15kVA

www.victronenergy.com

The problem

In most countries, a single fault-tolerant grid disconnect is required for ESS systems that can feed solar energy back into the grid.
The Quattro's 48V/8, 10 and 15kVA have a single isolation contactor on each of the two inputs and grid disconnection is therefore not single fault tolerant.

The solution

The Quattro's have been tested and certified for ESS when installed in conjunction with Ziehl's UFR1001E anti-islanding device and two, series-connected, contactors. Single fault tolerant grid disconnection is achieved by adding the UFR1001E and the two contactors.
The Quattro takes care of the other ESS-related requirements, such as reactive power control and correct response to grid frequency and voltage deviations.

ESS up to 180kVA

The solution is applicable to single phase and three phase systems, and up to 4 sets of three 15kVA units can be parallel connected to provide 144kW/180kVA inverter power and 2400A battery charging capacity.
The solution can be used with Solar Charge Controllers and/or with Solar Inverters.

Manual and instructions

For a general description of the UFR1001E, see Voltage and Frequency Relay Type UFR1001E | S222296
For the latest manual, see 12420-0701-32

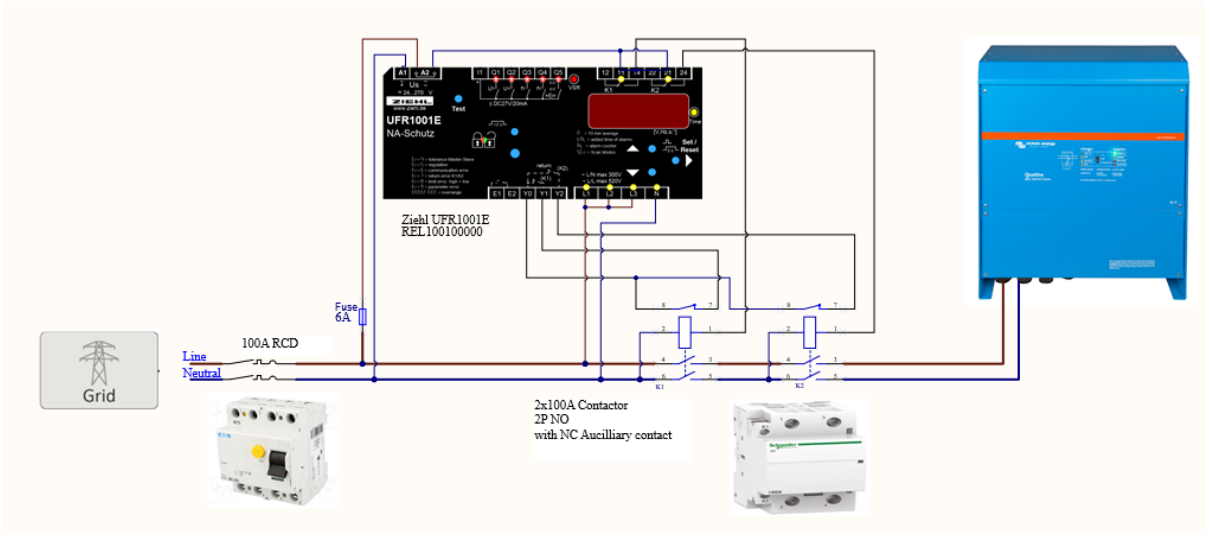
See page 23 of the manual for power-up en programming the UFR1001E.
See below for a single phase and a three phase wiring example.

Note 1: the Quattro's must be set to the right country standard with "external ns protection".
Note 2: we do stock a pre-wired 63A Anti-Islanding box, see picture below.

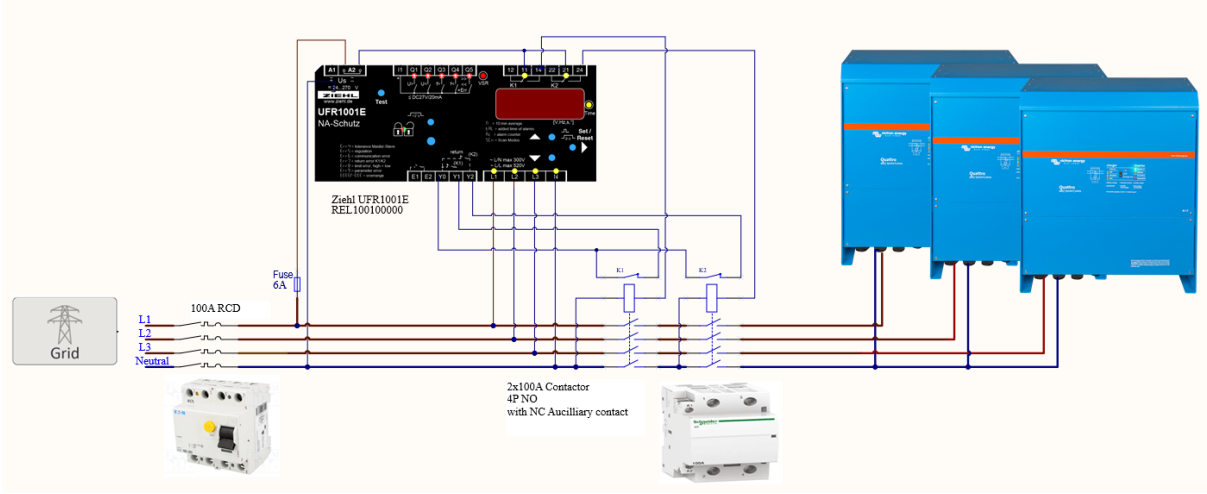


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Single phase wiring diagram



Three phase wiring diagram



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Programming the Ziehl UFR1001E

1. Apply voltage to A1-A2
2. Slightly lift the key cover and turn 180°
3. Actuate the small blue button by firmly pressing the button cover (LED starts flashing) until the green LED is illuminated.
4. The Sealing is deactivated
5. Press ▲1x display InFo
6. Press ▶5x display Pr 1
7. Set the Program (Country) with ▲▼as in below table

Germany, VDE-AR-N 4105:2018	1 phase	Pr. 2
	3 phase	Pr. 7
Belgium, C10/11	1/3 phase	Pr. 16
Austria, TOR erzeuger	1/3 phase	Pr. 10
UK, G98/G99	1/3 phase	Pr. 20
South Africa and setting as in the parameter table	1 phase	Pr. 5
	3 phase	Pr. 6

   For other Europe EN50549-1 and Australia AS4777.2 see parameter table
8. For safety reasons, the mirror contact of both relay's should be monitored. Set "trEL response time Yx" to 5 in menu "rEL"
9. For other Countries apply the settings manually as in the next table.

Parameter table

Menu	Parameter /unit	Program	South Africa NRS097 3 phase + N Pr 5	South Africa NRS097 3 phase Pr 6	Europe EN50549-1 1 and 3 Phase Pr 5	Australia AS4777.2 1 and 3 Phase Pr 5
U⁻⁻	U⁻⁻ Alarm on/off		on	on	on	on
	U⁻⁻ Overvoltage	V	276	478	265	265
	H⁻⁻ Hysteresis	V	3,0	3,0	12	15
	dAL response time	s	0,16	0,16	0.10	0.10
	doF OFF-Delay	s	60	60	60	60
U⁻	U⁻ Alarm on/off		on	on	On	On
	U⁻ Overvoltage	V	253	438	276	260
	H⁻ Hysteresis	V	3,0	3,0	23	5
	dAL response time	s	2,0	2,0	0.2	1
	doF OFF-Delay	s	60	60	60	60
UN⁻	UN Alarm on/off		oFF	oFF	on	OFF
	UN Overvoltage	V	253	438	253	253
	HN Hysteresis	V	3,0	3,0	5	5.0
	dAL response time	s	0,10	0,10	300	0.10
	doF OFF-Delay	s	60	60	60	60
U_	U_ Alarm on/off		on	on	On	On
	U_ Undervoltage	V	196	339	186	180
	H_ Hysteresis	V	3	3	5	12
	dAL response time	s	10	10	0.5	1
	doF OFF-Delay	s	60	60	60	60
U_ _	U_ _ Alarm on/off		on	on	On	On
	U_ _ Undervoltage	V	115	199	184	103
	H_ _ Hysteresis	V	2,0	2,0	11.5	93.0
	dAL response time	s	0,20	0,20	0.30	0.30
	doF OFF-Delay	s	60	60	60	60
F⁻	F⁻ Alarm on/off		on	on	On	On
	F⁻ Overfrequency	Hz	52,00	52,00	52.7	52
	H⁻ Hysteresis	Hz	1,45	1,45	2.5	1.40
	dAL response time	s	4,0	4,0	30	0.10
	doF OFF-Delay	s	60	60	60	60
F_	F_ Alarm on/off		on	on	On	On
	F_ Underfrequency	Hz	47	47	47.5	47
	H_ Hysteresis	Hz	1,00	1,00	2	0.10
	dAL response time	s	0,2	0,2	30	0.10
	doF OFF-Delay	s	60	60	60	60
F_ _	F_ _ Alarm on/off		oFF	oFF	On	Off
	F_ _ Underfrequency	Hz	47,5	47,5	47	47.00
	H_ _Hysteresis	Hz	1,00	1,00	2.5	0.60
	dAL response time	s	0,10	0,10	0.2	0.10
	doF OFF-Delay	s	60	60	60	60
uSr	uSr Alarm on/off		Stby	Stby	off	off
	uSr Vector shift		10	10	7.0	7.0
	doF OFF delay	s	3	3	20	20
	dEon Suppression time	s	3	3	2	2
	uSr Number of phases		3Ph	3Ph	3Ph	3Ph
rEL	trEL Response time Yx		5.0	5.0	5.0	5.0
	doFA mode		I nd	I nd	ind	ind
	doFA OFF-delay All		0	0	0	0

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