

ENERGY SOLUTIONS

General Catalog

N.02-2002



Flexible power, inflexible protection.

INDEX 

summary

flexible power, inflexible protection

THE RIELLO ELETTRONICA GROUP

p 04

PRODUCT RANGE (FAST SELECTION TABLE)

p 06

IT RANGE

p 08

Win Dialog

p 08

Personal Dialog Pro

p 10

Net Dialog

p 12

Dialog Active

p 14

Dialog Plus

p 18

NETWORK RANGE

p 22

Power Dialog Plus

p 22

Multi Dialog

p 26

INDUSTRY RANGE

p 32

Master Dialog

p 32

Dialog Power Centre

p 42

NET-TEL RANGE (19" RACK SOLUTIONS)

p 44

Dialog Active rack

p 44

Dialog Plus Rack

p 48

Dial Inverter

p 50

Multiswitch

p 52

Multi shelter cabinets

p 54

DIALOG SEC [SECURITY] RANGE FOR SECURITY

p 56

DIALOG E-BUSINESS RANGE FOR THE INTERNET

p 57

STABILIZER RANGE

p 58

Stabilog-EL1 static

p 59

Stabilog-EM1-EMT3-EMY3 dynamic

p 60

COMMUNICATION SOFTWARE

p 64

PowerShield2

p 64

Kit Software per AS/400

p 66

Netman

p 66

USB Converter

p 66

Multiplexer

p 66

UPSERVICE

p 67

POWER SUPPLY PROBLEMS AND UPS SELECTION

p 68

FLEXIBLE POWER, THE RIELLO ELETTRONICA GROUP

THE RESULT OF AMALGAMATING VARIOUS INDUSTRIAL COMPANIES WITH UNMATCHED EXPERIENCE OF UPS ACQUIRED IN VARIOUS SECTORS:



- PROFESSIONAL IT
- SMALL OFFICE/HOME OFFICE (SOHO)
- TELECOMMUNICATIONS
- INDUSTRY
- SECURITY (EMERGENCY LIGHTS, ALARM SYSTEMS, ETC.)
- HOSPITALS

[Some facts and figures about the Group]

6

the number of companies forming the RIELLO ELETTRONICA Group

70

the years that have passed since "power" business was launched for the first time (with 30 years' specific experience in Uninterruptible Power Supplies - UPS)

20

the lines of the RIELLO UPS range

2 years

the average age of the products, maintained in a primary position with far-reaching R&D investments

3

the independent enterprises dedicated to developing new technologies and products

9001

the ISO certification awarded to RIELLO UPS

70,000

the number of appliances produced each year by RIELLO UPS

[A complete solution with maximum reliability]

RIELLO UPS can today claim to have acquired LONG-TERM EXPERIENCE in the sector of power availability and quality.

The companies of the Riello Elettronica group have more than ten years' experience in the sector. The 6 companies of the group operate with a high level of synergy, with considerable advantages in terms of quality and economies of scale (more than 70,000 UPS produced each year) and each company also contributes its specific experience in different sectors, making it possible to present A FULL RANGE OF SOLUTIONS for all applications, from 300VA to 6400kVA. The RIELLO UPS range comprises more than 20 lines and options for powering any type of load (from information technology to industry), in any type of installation (office or dedicated power room), with any type of distribution (single-phase or three-phase, TN/TT or IT), from any type of power source (mains, generator, transformer).

Special attention is also given to the communication options that let users manage fully automatically their "no-break system" over any type of communication medium (serial connection, BUS connection, telephone connection or LAN).



INFLEXIBLE PROTECTION

The range comprises

- 300VA to 6400kVA UPS
- Stabilizers
- Communication software
- Multi switches
- Inverters (DC input /AC output)
- Modular rack-mount cabinets

All these components allow users to set up the most suitable availability solution according to their specific requirements.

[THE "DIALOG" RANGE]

DIALOG = Communication!

RIELLO has given top priority to communication with large-scale investments in communication software that makes it possible to integrate the UPS in any type of environment, in particular in the IT sector where communication between machines is vital.

The software solutions, often included in the Dialog line, are developed by the Riello UPS research centers and are entitled to be considered avant-garde in relation to the existing market solutions.

Turin), continuously develops solutions to improve product characteristics and provide users with exceptional reliability at reduced use and operating costs (consider for example the reduction in space/consumption/impact on the mains power supply/communication options).

[QUALITY POLICY]

RIELLO UPS is ISO9001 certified. Over the years, quality has become engrained in the culture of RIELLO UPS personnel and plays an active role in determining product quality and in particular in providing a faster, more effective, CUSTOMER SERVICE that is oriented at problem-solving.

The test procedure includes no less than 6 fully automatic tests, from the electronic cards to the finished product, which is tested on a bed that reproduces actual operation at the installation site (Active Run In). Also very important in relation to quality is the TUV certification, awarded for some lines, and integrated production of the entire UPS range which is developed and produced at the Legnago (VR), Milan and Turin facilities.



[APPLIED RESEARCH]

The RIELLO UPS research center, at 3 different sites (Vallese, Milan and



INDEX



UPS PRODUCT RANGE

IT RANGE

For less complex IT applications (home PC or SOHO (Small Office/Home Office), where the main requirements are lower costs, unfailing availability and excellent communication capabilities.

	Personal computers	Small computer networks	• Local Area Networks (LAN)	• Work stations	• Servers	Point of Sale Systems (POS)
WIN DIALOG 320-620VA page 08						
PERSONAL DIALOG PRO 300-650VA page 10 NET DIALOG page 12						
DIALOG ACTIVE 500-2000VA sinewave output page 14						
DIALOG PLUS 700-5000VA page 18						

NETWORK RANGE

For corporate computer networks, up to internet server providers and telecommunications, wherever top flight reliability and modularity (possibility of upgrading system power and reliability at any time) are required.

	Personal computers	Small computer networks	• Local Area Networks (LAN)	• Work stations	• Servers	Point of Sale Systems (POS)
POWER DIALOG PLUS 6-10kVA page 22						
MULTI DIALOG 10-20kVA single-phase and 10-30 kVA three-phase page 26						

INDUSTRY RANGE

For industrial processes, security (emergency lights, fire alarms) and hospital applications, wherever maximum electrical and mechanical performance is required in addition to long back-up.

	Personal computers	Small computer networks	• Local Area Networks (LAN)	• Work stations	• Servers	Point of Sale Systems (POS)
MASTER DIALOG RM 8-20kVA single-phase page 32						
MASTER DIALOG RT 10-160kVA three-phase page 36						
DIALOG POWER CENTRE2 30-80 kVA three-single phase 200-800 kVA three phase page 42						

NET-TEL RANGE (19" rack-mount solutions)

For IT and telecommunications applications, in 19" rack-mount cabinets, wherever high level reliability, modularity and compactness are essential.

	Personal computers	Small computer networks	• Local Area Networks (LAN)	• Work stations	• Servers	Point of Sale Systems (POS)
UPS racks page 44						
INVERTER rack page 50						
MULTI SWITCH page 52						
RANGE OF MULTI SHELTER CABINETS page 54						

STABILIZERS RANGE

page 58

COMMUNICATION SOFTWARE

page 64

SPECIFIC SOLUTIONS

RIELLO UPS also proposes a range of DC/DC converters, inverters and custom solutions: contact us for further information.

TABLE FOR RAPID SELECTION

• Data centers	• Industrial PLCs	• Cash registers	• Electro-medical devices	• Emergency devices (lights/alarms)	• Devices for tele-communications	• e-Business (Server Farms, ISP/ASP/POP)	• Industrial processes

• Data centers	• Industrial PLCs	• Cash registers	• Electro-medical devices	• Emergency devices (lights/alarms)	• Devices for tele-communications	• e-Business (Server Farms, ISP/ASP/POP)	• Industrial processes

• Data centers	• Industrial PLCs	• Cash registers	• Electro-medical devices	• Emergency devices (lights/alarms)	• Devices for tele-communications	• e-Business (Server Farms, ISP/ASP/POP)	• Industrial processes

• Data centers	• Industrial PLCs	• Cash registers	• Electro-medical devices	• Emergency devices (lights/alarms)	• Devices for tele-communications	• e-Business (Server Farms, ISP/ASP/POP)	• Industrial processes

--

--

--





WIN DIALOG

[320-620VA single-phase]

The **WIN DIALOG** series comprises the 320-420-620VA models with digital Line Interactive (VI) technology. The load is powered by the mains which, when present, has amplitude stabilized by the AVR and is filtered of overvoltages by the EMI filters. In the case of a mains failure, the load will be powered by the inverter with pseudo sinewave for brief periods, long enough to permit shut-down of the computer systems by the UPS MON software which is standard.

APPLICATIONS

- personal computers
- small computer networks

CHARACTERISTICS

- mains power supply stabilization and filtering (Line Interactive (VI) technology with AVR and filters for suppression of atmospheric disturbances)
- low consumption (sleep mode: the inverter is switched off under no-load conditions)
- integrated protection for PC networks and telephone line/modem (07/09 models)
- possibility of switching on the UPS without the mains supply present (Cold Start capability)
- high level reliability of the batteries (battery test)

ADVANCED COMMUNICATION

- **Powershield²** supervision and shut-down software for Windows 95, 98, Me, NT 4.0 Workstation operating systems included, XP, Linux, Novell (on CD ROM) (07/09 models)
- advanced communication (standard RS232 interface) (07/09 models)

2-YEAR WARRANTY



- 1 UPS on mains
- 2 UPS on batteries
- 3 Battery replacement
- 4 ON/OFF - test - alarm reset



- 1 pc/telephone line/modem protection
- 2 RS232 serial
- 3 Inlet
- 4 outlets



MODELS

POWER

INPUT

Rated voltage	220 – 240 Vac
Voltage range	230 Vac (+/-25%)
Frequency	50/60 Hz with autorange

OUTPUT

Voltage in mains operation	230 Vac (-14%, +9%)
Voltage in battery operation	230 Vac (+/-5%)
Frequency in battery operations	50 o 60 Hz (+/- 0.5%)
Transfer time	Typical 2 ms, maximum 4 ms
Waveform from battery	Pseudo sinewave

BATTERIES

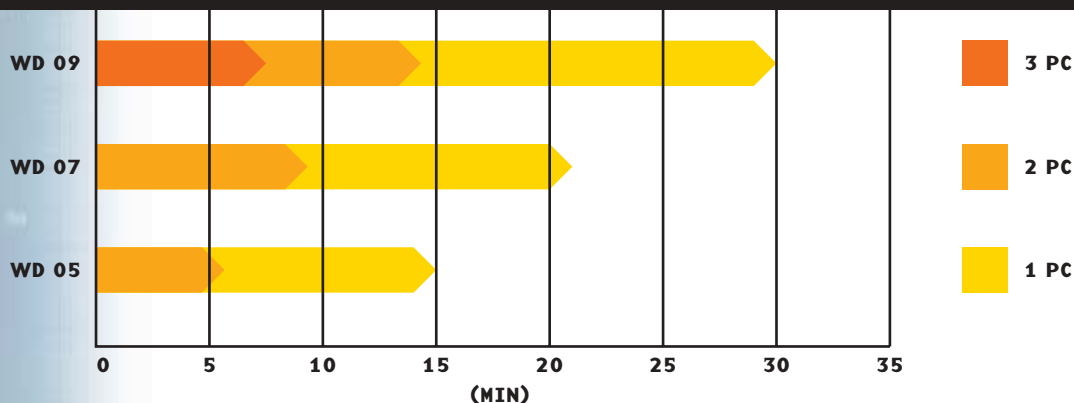
Type	Maintenance-free sealed lead-acid
Recharge time	4-6 h

OTHER DATA

Protection	Battery low – overcurrent – short-circuit
Tel./Net. protection	- RJ45 connectors
Communication	- RS232 serial
Safety compliance	EN 50091-1-1 and Directives 73/23 EEC, 93/68 EEC
EMC conformance	EN 50091-2 cl. B and Directives 89/336 EEC, 92/31 EEC, 93/68 EEC
Noise	< 40 dBA at 1 mt.
Operating temperature	0 °C / +40 °C
Storage temperature	-15 °C / +45 °C
Color	Light gray RAL 7035
Elevation and relative humidity	6000 meters max. elevation, 0 – 95 % non condensing

Technical data

Back-up graph



Description	Power	Back-up (min)	Dimensions (HLP) mm	Weights (Kg)	Code
Win Dialog WD05	320VA/190W	5-15*	152x110x325	5.8	UST103033XRU
Win Dialog WD07	420VA/250W	9-20*	152x110x325	6.2	UST204033XRU
Win Dialog WD09	620VA/370W	7-30*	152x110x325	6.5	UST206033XRU
communication software		See software section page 66			

* According to load applied (see back-up graph)

Table Codes
weights, dimensions

PERSONAL DIALOG PRO

[300-650VA single-phase]



The **PERSONAL DIALOG PRO** series comprises the 300-450-650VA models with digital Line Interactive (VI) technology. The load is powered by the mains which, when present, has amplitude stabilized by the AVR and is filtered of overvoltages by the EMI filters. In the case of a mains failure, the load will be powered by the inverter with pseudo sinewave long enough to permit shut-down of the computer systems by the **PowerShield²** software which is standard.

For advanced communication, performance (standard power share function) and design (Pininfarina) **PERSONAL DIALOG PRO** is the solution for more demanding users who require fully automatic control of their power system.

APPLICATIONS

- personal computers
- small computer networks

CHARACTERISTICS

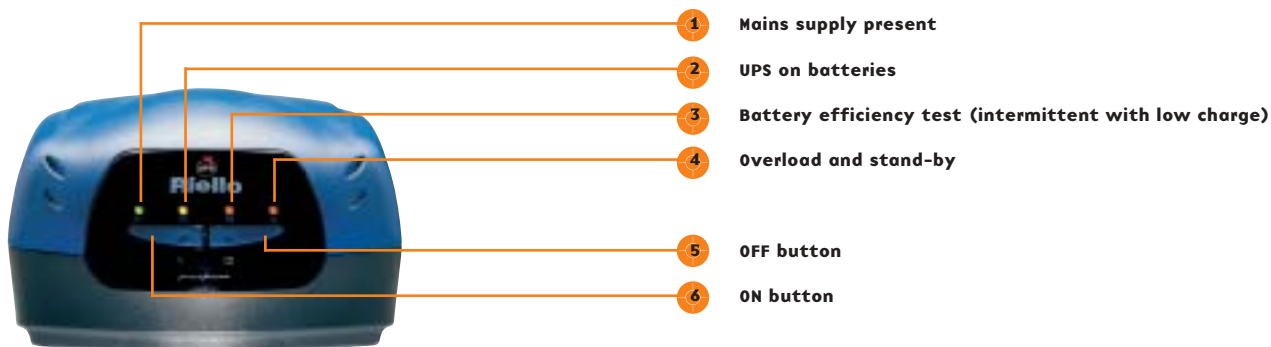
- 2 outlets: one for critical loads (computers), one for non-critical loads (printers), with the possibility, in the case of a blackout, of software-programmable disconnection of one output before the other ("Power Share" function) after 1 min. of back-up or in battery low conditions
- mains supply stabilization and filtering - Line Interactive (VI) technology - with AVR and filters for suppression of atmospheric disturbances
- Pininfarina design
- low consumption (efficiency 97%)
- possibility of switching on the UPS without the mains supply present
(Cold Start capability)
- Auto restart at power-up
- high level reliability of the batteries (automatic battery test)

ADVANCED COMMUNICATION

- high level multi-platform communication for all operating systems and network environments: **PowerShield²** supervision and shut-down software included, with standard integrated SNMP agent, for Windows 95, 98, 2000, Me, XP, Mac OSx, 9.x, Linux, NT 4.0, Novell operating systems.

The UPS is furnished with a cable for direct connection to the PC (Plug and Play)

2-YEAR WARRANTY



- 1 Mains fuse
- 2 RS232 serial
- 3 Inlet
- 4 Outlet
- 5 "Power Share" outlet



MODELS

POWER

INPUT

Rated voltage	220 – 240 Vac	
Voltage range	230 Vac (-18%, +15%)	230 Vac (-22%, +15%)
Frequency	50/60 Hz with autorange	

OUTPUT

Voltage in mains operation	Equal to mains supply value	230 Vac (-13%, +11%)
Voltage in battery operation	230 Vac $\pm 5\%$	
Frequency in battery operation	50 or 60 Hz $\pm 0.1\%$	
Transfer time	typical 2 ms, maximum 4 ms	
Waveform from battery	Pseudo sinewave	

BATTERIES

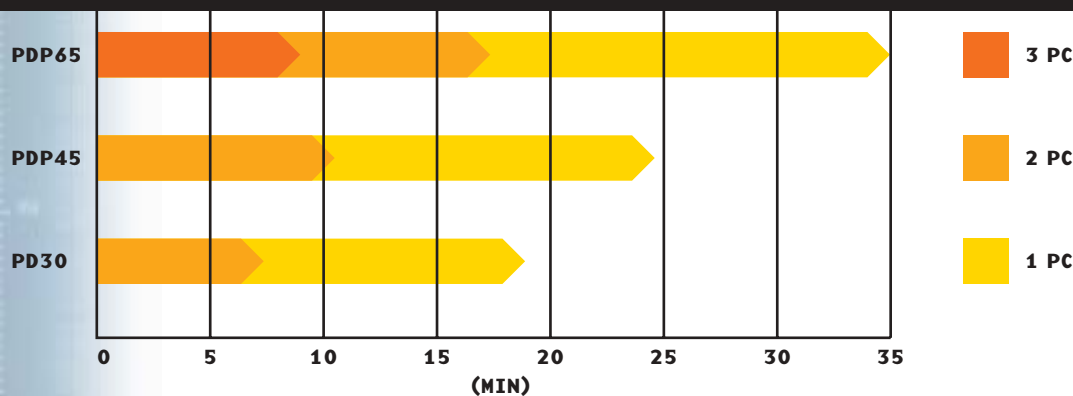
Type	Maintenance-free sealed lead-acid
Recharge time	4-6 h

OTHER DATA

Protection	Battery low – overcurrent – short-circuit
Safety compliance	EN 50091-1-1 and Council Directive 73 / 23 EEC
EMC conformance	EN 50091 - 2 cl. B and Council Directive 89 / 336 EEC
Surge capability	IEC 801-5
Noise	< 40 dBA at 1 mt.
Color	Base gray, shell blue
Operating temperature	0 °C / +40 °C
Storage temperature	-15 °C / +45 °C
Relative humidity	< 90 % non condensing

Technical data

Back-up graph



Description	Power	Back-up (min)	Dimensions (HLP) mm	Weights (Kg)	Code
Personal Dialog PD30	300VA/195W	7-18*	137x201x374	6	UPIN03053XRUB0R
Personal Dialog Pro PDP45	450VA/260W	10-24*	137x201x374	6,5	UPIN04053XRUB1R
Personal Dialog Pro PDP65	650VA/410W	8-34*	137x201x374	9,5	UPIN06053XRUB1R
communication software	See software section page 66				

* According to load applied (see back-up graph)

Table Codes
weights, dimensions

NET DIALOG

[1000-1500VA SINGLE-PHASE]



The **NET DIALOG** series comprises the 1000-1500VA models with digital Line Interactive (VI) technology. The load is powered by the mains which, when present, has amplitude stabilized by the AVR and is filtered of overvoltages by the EMI filters.

In the case of a mains failure, the load will be powered by the inverter with pseudo sinewave long enough to permit shut-down of the computer systems by the **PowerShield²** software which is standard. The UPS also integrates an outlet for PC networks and telephone line, for filtering and complete protection of the installation.

For advanced communication and top flight performance (standard power share function), **NET DIALOG** is the solution for more demanding users who require fully automatic control of their power system .

APPLICATIONS

- personal computers
- small/medium computer networks

CHARACTERISTICS

- 4 outlets: three for critical loads (computers), one for non-critical loads (printers) with the possibility, in the case of a blackout, of software-programmable disconnection of the "non-critical" loads before the others ("Power Share" function) after 1 minute of back-up or in battery low conditions
- mains supply stabilization and filtering (Line Interactive VI technology) with AVR and filters for suppression of atmospheric disturbances
- possibility of switching on the UPS without the mains supply present (Cold Start capability)
- automatic restart at power-up
- integrated protection for PC networks and telephone line/modem
- high level reliability of the batteries (automatic battery test)

ADVANCED COMMUNICATION

- advanced, multi-platform communication for all operating systems and network environments: **PowerShield²** supervision and shut-down software included, with integrated SNMP agent, for Windows 95, 98, 2000, Me, XP, Mac OSx, 9.x, Linux, NT 4.0, Novell operating systems.

The UPS is equipped with a cable for direct connection to the PC (Plug and Play)

2-YEAR WARRANTY



- 1 Mains supply present
- 2 Overload / Standby
- 3 Battery replacement
- 4 On batteries
- 5 ON button
- 6 OFF button



- 1 Input fuse
- 2 RS232 serial
- 3 Inlet
- 4 Outlets
- 5 "Power share" outlet
- 6 PC/telephone line/modem protection



MODELS

POWER

INPUT

Rated voltage	220 – 240 Vac
Voltage range	230 Vac (-22%, +15%)
Frequency	50/60 Hz with autorange

OUTPUT

Voltage in mains operation	230 Vac (-13%, +11%)
Voltage in battery operation	230 Vac (+/- 5%)
Frequency in battery operation	50 o 60 Hz (+/- 0.5%)
Transfer time	Typical 2 ms, maximum 4 ms
Waveform from battery	Pseudo sinewave

BATTERIES

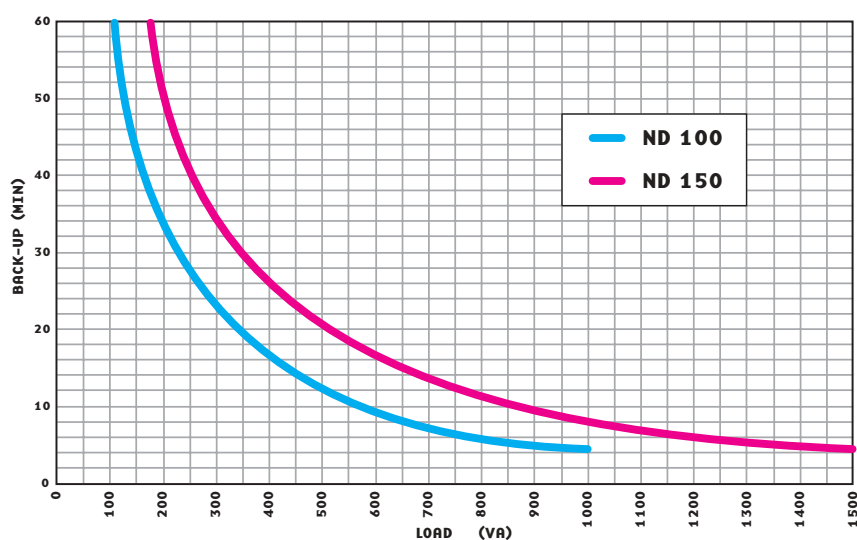
Type	Maintenance-free sealed lead-acid
Back-up at typical load (min)	99
Recharge time	4-6 h

OTHER DATA

Protection	Battery low – overcurrent – short-circuit
PC NET/Tel/Modem protection	RJ45 connectors
Communications	Porta RS232
Safety compliance	EN 50091 - 1 - 1 and Council Directive 73 / 23 EEC
EMC conformance	EN 50091 - 2 cl. B and Council Directive 89 / 336 EEC
Surge capability	IEC 801-5
Noise	< 40 dBA at 1 mt.
Color	Light gray RAL 7035
Operating temperature	0 °C / +40 °C
Storage temperature	-15 °C / +45 °C
Relative humidity	< 90 % non condensing

Technical data

Back-up graph



Description	Power	Back-up (min)	Dimensions (HWD) mm	Weights (Kg)	Code
Net Dialog ND100	1000VA/600W	9*	231x158x376	16	USWM10043XRU
Net Dialog ND150	1500VA/900W	9*	231x158x376	21	USWM15043XRU
Communication software	See software section page 64				

* According to load applied (see back-up graph)

Table Codes
weights, dimensions

DIALOG ACTIVE

[500-2000VA single-phase]



The **DIALOG ACTIVE** series comprises the 500-750-1000-1500-2000VA models with digital Line Interactive (VI) technology.

The load is powered by the mains which, when present, has amplitude stabilized by the AVR and is filtered of overvoltages and surges. In the case of a mains failure, the load will be powered by the inverter with pure SINEWAVE long enough to permit shut-down of the computer systems by the **PowerShield²** software which is standard.

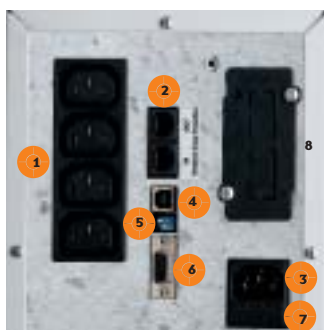
The UPS also integrates an outlet for PC networks and telephone line, for filtering and complete protection of the installation. For advanced communication and top flight performance (standard power share function),

DIALOG ACTIVE is the solution for more demanding users who require complete protection and fully automatic control of the power system.

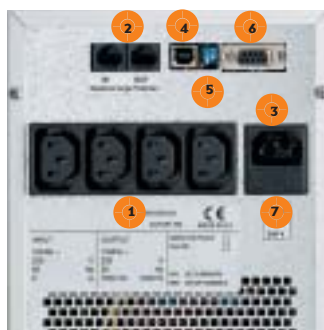


- 1 Load
- 2 AVR on
- 3 UPS on batteries
- 4 Batteries/stand-by status
- 5 UPS on mains
- 6 Battery test
- 7 ON/OFF button

DA 160-200



DA 50-150



- 1 Outlets
- 2 PC/telephone line/modem protection
- 3 Inlet
- 4 USB connector
- 5 Selector switch (RS232/USB)
- 6 serial RS232
- 7 Input fuse
- 8 Slot for network card (DA 160 - DA 200)

CHARACTERISTICS

- mains supply stabilization and filtering
Line Interactive (VI) technology with AVR and filters for suppression of atmospheric disturbances
- high quality output voltage
(pure sinewave output (distortion <2%))
- high level immunity to surges
(6kV according to IEC801-5)
- possibility of switching on the UPS without
the mains power present (Cold Start capability)
- integrated protection for PC networks
and telephone line/modem
- high level reliability of the batteries
(automatic battery test)

APPLICATIONS:

- Small/medium computer networks
- Local Area Networks (LAN)
- Workstations
- Servers
- POS (Point of Sale) systems



ADVANCED COMMUNICATION

- advanced, multi-platform communication for all operating systems and network environments: **PowerShield²** supervision and shut-down software included, with SNMP agent, for Windows 95, 98, 2000, Me, XP, Mac OSx, 9.x, Linux, NT 4.0, Novell operating systems.
- USB or RS232 serial port (selectable)
- equipped with slot for integration of the SNMP agent (DA200 model) on the UPS

2-YEAR WARRANTY

MODELS

POWER

INPUT

DA 50	DA 75	DA 100	DA 150	DA 200
500VA/335W	750VA/500W	1000VA/670W	1500VA/1000W	2000VA/1340W

Rated voltage	230 VAC
Voltage range with mains supply present	230V (-25 / + 21)%
Frequency	50 – 60 Hz with autorange
Frequency range	+/- 5 Hz

OUTPUT

Rated voltage	230 VAC
Voltage in mains operation	230 V (-15 / +11)%
Frequency	50 – 60 Hz with autorange
Voltage in battery operation	230V (+/- 5%)
Waveform	Sinewave
Distortion	<2%

BATTERIES

Type	Maintenance-free sealed lead-acid
Recharge time	8 h

OTHER DATA

Operating temperature	0 ÷ 40 °C
Humidity	<90%
Protection	Overload – short-circuit – overvoltage – undervoltage temperature – low battery
Safety compliance	EN 50091-1-1 and Council Directive 73 / 23 EEC, Council Directive 93 / 68 EEC
EMC conformance	EN 50091 – 2 cl. B and Council Directive 89 / 336 EEC
Surge capability	IEC 801-5 6 KV 1.2 / 50 µs; 3 KA 8 / 20 µs differential
Color	Light gray RAL 7035
Noise	< 40 dBA at 1 m.

Technical data

Back-up graph

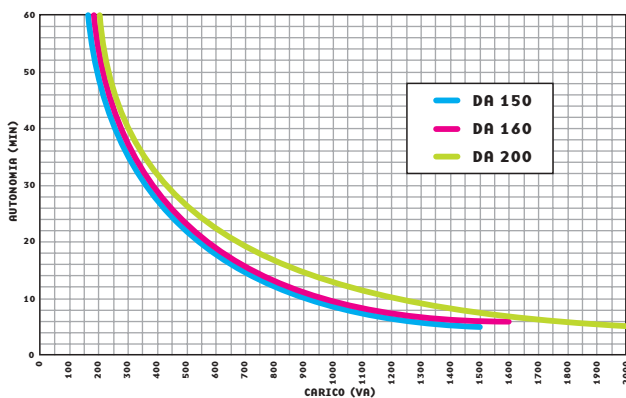
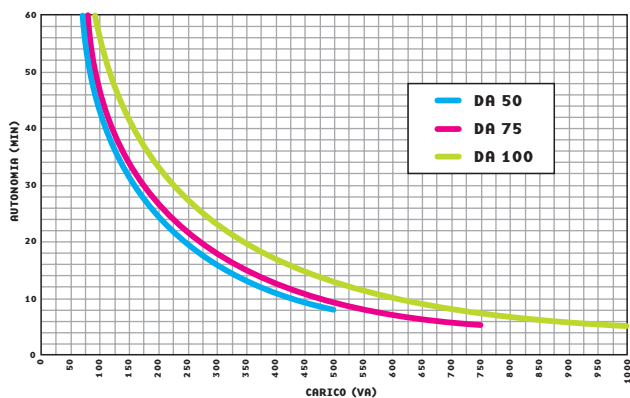


Table Codes
weights,
dimensions

Description	Power	Back-up (min)	Dimensions (HWD) mm	Weights (Kg)	Code
Dialog Active DA50	500VA/335W	13★	231x158x376	13	ULT105083XRUA
Dialog Active DA75	750VA/500W	8★	231x158x376	14	ULT107053XRUA
Dialog Active DA100	1000VA/670W	8★	231x158x376	14	ULT110053XRUA
Dialog Active DA150	1500VA/1000W	10★	231x158x376	20	ULT115053XRUA
Dialog Active DA200	2000VA/1340W	10★	340x158x485	25	ULT220053XRUA
Network card (DA 200)	/	/	/	/	ACCSA2XXRU-01
Communication software	See software section page 64				
★ According to load applied (see back-up graph)					

Back-up extension modules

UPS MODEL	BACK-UP rated load	Dimensions (HWD) Battery Module	Weights (Kg) Battery Module	Type	Code to be combined with that of the UPS with standard back- up)
Dialog Active DA200	20'	340x158x565	16	BB60-7	ACCHX115RU-07N1
	25'	340x158x565	24	BB60-12	ACCHX115RU-09N1
	25'	340x158x565	25	BC60-12	ACCHX115RU-01N1 (*)
	45'	340x158x565	45	BC60-24	ACCHX115RU-02N1 (*)
	55'	2x(340x158x565)	24+45	1x(BB60-12) + 1x(BC60-24)	(ACCHX115RU-09N1) + (ACCHX115RU-02N1) (*)

(*) Version with battery charger for faster recharging of the batteries

DIALOG PLUS

[700-5000VA single-phase]



The **DIALOG PLUS** series comprises the 700-1000-1500-2000-3000-4000-5000VA models with double on-line conversion technology (VFI).

The load is always powered by the inverter which provides a sinusoidal output, with filtered and stabilized voltage, waveform and frequency.

The input and output filters also considerably increase the immunity of the load to mains supply disturbances and to surges.

The UPS can power the load for long periods (using the optional battery modules) or long enough to permit shut-down of the computer systems by the **PowerShield²** software, which is standard, for Windows 95, 98, 2000, Me, XP, Mac OSx, 9.x, Linux NT 4.0 operating systems.

For technology and top flight performance, **DIALOG PLUS** is the best solution for the supply of sensitive and vital "mission-critical" applications.



- ① Load applied
- ② Battery charger
- ③ Timer on
- ④ Mains supply present
- ⑤ Inverter on
- ⑥ UPS on batteries
- ⑦ UPS on bypass
- ⑧ Batteries discharged/Battery replacement
- ⑨ Stand-by
- ⑩ Buzzer on/reset button
- ⑪ OFF button
- ⑫ Normal functioning



CHARACTERISTICS

- reliable, stabilized, filtered voltage (double on-line conversion technology (VFI according to EN50091-3 specifications) with filters for the suppression of atmospheric disturbances)
- high level immunity to surges (6kV according to IEC801-5)
- auto restart at power-up (programmable)
- power factor correction of the load (UPS input power factor, close to 1)
- low consumption (programmable "Auto Power Off" function for automatic shut-down of the UPS under no-load conditions)
- simplified maintenance
(manual bypass standard on DLP500)
- battery optimization: through the power share function (for automatic, software-programmable disconnection of non-critical loads during back-up (DLP70 and DLP100 models), after 1 minute of back-up or in battery low conditions)
- Timer for timed shut-down (software programmable)
- high level reliability of the batteries (automatic battery test)
- high level reliability of the UPS (full microprocessor control)
- low impact on the mains supply (sinusoidal absorption)

APPLICATIONS:

- Local Area Networks (LAN)
- Servers
- Data centers
- Industrial PLCs
- Cash registers
- Emergency devices (lights/alarms)
- Electro-medical devices
- Telecommunications devices



ADVANCED COMMUNICATION

- advanced, multi-platform communication, for all operating systems and network environments: **PowerShield²** supervision and shut-down software included, with SNMP agent for Windows 95, 98, 2000, Me, XP, Mac OSx, 9.x, Linux, NT 4.0, Novell operating systems. The UPS is equipped with a cable for direct connection to the PC (Plug and Play)
- RS232 serial port

2-YEAR WARRANTY

MODELS

POWER

INPUT

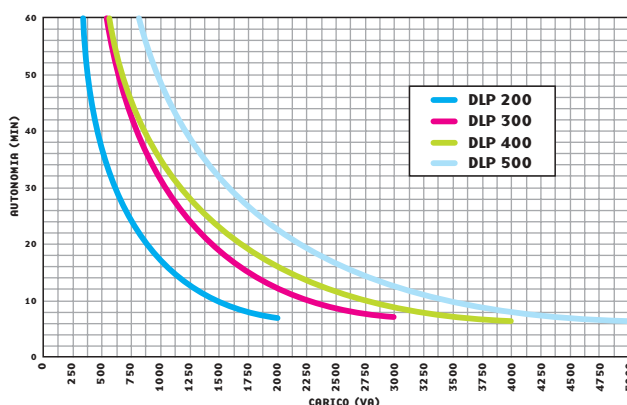
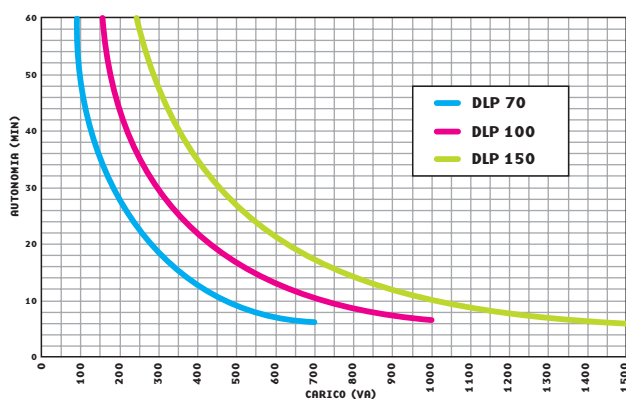
DLP70	DLP100	DLP150	DLP200	DLP300	DLP400	DLP500
700VA/450W	1000VA/700W	1500VA/1050W	2000VA/1400W	3000VA/2100W	4000VA/2400W	5000VA/3500W

Rated voltage	220 - 230 - 240 Vac						
Voltage range	170-276 Vac				176-276 Vac 170-276 Vac		
Rated frequency	50 - 60 Hz ±5 Hz						
Power factor	> 0.93			> 0.99			> 0.98
Input current	Sinewave						
BY- PASS							
Voltage range	180 - 264 Vac						
Frequency range	Selected frequency ±5 Hz						
BATTERY							
Recharge time	5 - 7 h		4 - 6 h		5 - 7 h		6 - 8 h
OUTPUT							
Rated voltage	230 Vac ±1.5%			220 or 230 or 240 Vac selectable ±1.5%			
Waveform	Sinewave						
Voltage distortion	< 2%						
Frequency	50 or 60 Hz autorange			50 or 60 Hz selectable			
Crest factor of the current	3 : 1			3.5 : 1		3 : 1	
INSTALLATION INFORMATION							
AC/AC efficiency	89 %	89 %	89 %	90 %	90 %	90 %	90 %
Operating temperature	0 - 40 °C						
Humidity	< 90 % non condensing						
Protection	Low battery - overcurrent - short-circuit - overvoltage - undervoltage - temperature						
Compliance	EN 50091-1-1 specifications and Council Directive 73 / 23 EEC EN 50091 - 2 cl. B and Council Directive 89 / 336 EEC						
Surge capability	IEC 801-5 6KV 1.2/50 µsec; 3KA 8/20 µsec						
Color	Light gray RAL 7035						
Noise	< 40 dBA at 1 m				< 45 dBA at 1 m		
Maximum input current	3.5 A	5 A	7.4 A	10 A	14.4 A	16 A	24 A
Diff. input current*	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	6 mA

* This value must be added to the differential current of the equipment.

Technical data

Back-up graph



Remote mimic panel (leds)



Description	Power	Back-up (min)	Dimensions (HWD) mm	Weights (Kg)	Code
Dialog Plus DLP70	700VA/450W	8*	231x158x376	7	UHC10705XXRU
Dialog Plus DLP100	1000VA/700W	10*	231x158x376	10	UHC11006XXRU
Dialog Plus DLP150	1500VA/1050W	11*	340x158x485	23	UKX11506XXRU-N1
Dialog Plus DLP200	2000VA/1400W	11*	340x158x485	27	UKX12006XXRU-N1
Dialog Plus DLP300	3000VA/2100W	13*	480x158x590	43	UHX23008XXRU-N1
Dialog Plus DLP400	4000VA/2400W	10*	480x158x590	44	UHX24006XXRU-N1
Dialog Plus DLP500	5000VA/3500W	11*	528x230x650	65	UHX35006XXRU-N1

* According to load applied (see back-up graph)

Back-up extension modules

UPS MODEL	BACK-UP	Dimensions (HWD) Battery Module	Weights (Kg) Battery Module	Battery* Module Type	Code (to be combined with th of the UPS with standard back-up)
Dialog Plus 1000VA	25'	231x158x376	16	BB36-12	ACCHC110RU-01
	45'	2x(231x158x376)	32	2x(BB36-12)	(2x) ACCHC110RU-01
Dialog Plus 1500VA	25'	340x158x565	16	BB60-7	ACCHX115RU-07N1
	30'	340x158x565	24	BB60-12	ACCHX115RU-09N1
	30'	340x158x565	25	BC60-12	ACCHX115RU-01N1
	60'	340x158x565	44	BB60-24	ACCHX115RU-10N1
	60'	340x158x565	45	BC60-24	ACCHX115RU-02N1
Dialog Plus 2000VA	20'	340x158x565	19	BB72-7	ACCKX120RU-02N1
	25'	340x158x565	28	BB72-12	ACCKX120RU-03N1
	45'	2x(340x158x565)	56	2x(BB72-12)	(2x) ACCKX120RU-03N1
	45'	2x(340x158x565)	58	2x(BC72-12)	(2x) ACCKX120RU-01N1
	25'	340x158x565	28	BB120-7	ACCHX230RU-05N1
Dialog Plus 3000VA	30'	340x158x565	44	BB120-12	ACCHX230RU-04N1
	30'	340x158x565	45	BC120-12	ACCHX230RU-01N1
	60'	2x(340x158x565)	88	2x(BB120-12)	(2x) ACCHX230RU-04N1
	60'	2x(340x158x565)	90	2x(BC120-12)	(2x) ACCHX230RU-01N1
	90'	3x(340x158x565)	132	3x(BB120-12)	(3x) ACCHX230RU-04N1
	90'	3x(340x158x565)	135	3x(BC120-12)	(3x) ACCHX230RU-01N1
	20'	340x158x565	28	BB120-7	ACCHX230RU-05N1
Dialog Plus 4000VA	26'	340x158x565	44	BB120-12	ACCHX230RU-04N1
	26'	340x158x565	45	BC120-12	ACCHX230RU-01N1
	35'	2x(340x158x565)	56	2x(BB120-7)	(2x) ACCHX230RU-05N1
	45'	3x(340x158x565)	84	3x(BB120-7)	(3x) ACCHX230RU-05N1
	50'	2x(340x158x565)	90	2x(BC120-12)	(2x) ACCHX230RU-01N1
	70'	3x(340x158x565)	135	3x(BC120-12)	(3x) ACCHX230RU-01N1
	20'	528x230x650	70	BB180-7	ACCHX350RU-01
Dialog Plus 5000VA	30'	528x230x650	100	BC180-12	ACCHX350RU-02
	50'	528x230x650	170	BC180-24	ACCHX350RU-03
	105'	2x(528x230x650)	340	2x(BC180-24)	(2x) ACCHX350RU-03

* The BC version includes a battery charger

Options

Description	Dimensions (HWD) mm	Weights (Kg)	Type	Code
Isolation transformer module for DLP100/DLP150	340x158x480	22	MMDLP150	ACCHX115RU-05
Isolation transformer module for DLP200/DLP300	340x158x480	30	MMDLP300	ACCHX230RU-02
Isolation transformer module for DLP500	265x400x500	60	MMDLP500	ACCM0650NP
Communication software	See software section page 64 (Powershield ² standard version included)			
LED-based remote control panel				ACCHX320NP

POWER DIALOG PLUS

[6 - 10kVA SINGLE/SINGLE-PHASE E THREE/SINGLE-PHASE]



The **POWER DIALOG PLUS** series comprises the 6kVA single/single-phase and 6.5-8-10kVA single/single-phase and three/single-phase models with double on-line conversion technology (VFI). The load is always powered by the inverter which provides a sinusoidal output voltage, with filtered and stabilized voltage, waveform and frequency. The input and output filters also considerably increase the immunity of the load to mains supply disturbances and to surges. For technology, top flight performance (selectable Economy Mode function and Smart Active Mode), diagnostics (standard LCD display, RS232 interfaces with **PowerShield²** software included, ESD input, slot for the network interface), **POWER DIALOG PLUS** is the best solution for the supply of sensitive and vital "mission-critical" equipment and security devices (electromedical) guaranteeing maximum reliability.

Note the simple installation: the UPS can be connected both to single-phase and three-phase mains.

DIGITAL DISPLAY

The multi-language display provides detailed status, measurement and alarm information



CHARACTERISTICS

- Reliable, stabilized, filtered voltage (double on-line conversion technology (VFI according to EN50091-3 specifications) with filters for suppression of atmospheric disturbances)
- High level reliability of the UPS: full microprocessor control static or manual bypass without interruption
- High level diagnostics: states, measurements, alarms available on standard LCD display!
- Power factor correction of the load (input power factor of the UPS, close to 1)
- Very low noise level <40dB(A)
- Low consumption ("Economy Mode" function and Smart Active Mode to increase efficiency up to 98%).
 - Economy Mode: makes it possible to select Line Interactive (VI) technology for mains powering of not very sensitive loads for certain periods. The function is software programmable or can be set manually from the UPS.
 - Smart Active: if the mains supply is out of range, the UPS will power the load from the inverter. When the mains supply is within range again, the UPS will monitor this for a certain period before switching the load again.
- Simple to install:
 - possibility of connecting the UPS both to single-phase and three-phase mains supply (PWP 650-800-1000 models)
 - output terminal block + 2 IEC outlets for powering of local equipment (computers, modems, etc.)
- Easy to position (integrated wheels)
- high level reliability of the batteries (automatic and manual battery test)
- autorestart at power-up (software programmable or from control panel)
- low impact on the mains supply (sinusoidal absorption of the input current on single-phase/single-phase series)
- Emergency operation: the UPS can be set for operating only with mains absent (for emergency lights)
- Back feed protection standard: for avoiding energy feedback to the mains

APPLICATIONS:

- Local Area Networks (LAN)
- Servers
- Data centers
- Industrial PLCs
- Cash registers
- Emergency devices (lights/alarms)
- Electro-medical devices
- Telecommunications devices



ADVANCED COMMUNICATION

- advanced, multi-platform communication, for all operating systems and network environments: PowerShield2 supervision and shut-down software included, with SNMP agent, for Windows 95, 98, 2000, Me, XP, Mac OSx, 9.x, Linux, NT 4.0, Novell operating systems. The UPS is equipped with a cable for direct connection to the PC (Plug and Play)
- RS232 serial port
- slot for installation of the mains adapter
- ESD (Emergency Switching Device) contact for UPS shut-down using remote emergency button

POWER DIALOG PLUS

MODELS

PWP 600

PWP 650

PWP800

PWP1000

INPUT

Rated voltage	230Vac single-phase	230 Vac single-phase or three-phase with neutral					
Minimum voltage for non intervention of the battery		170Vac @ 100% load 140Vac @ 50 load%					
Rated frequency		50 - 60 Hz ± 5 Hz					
Power factor	≥ 0.99	Single-phase ≥ 0.99	Three-phase ≥ 0.95	Single-phase ≥ 0.99	Three-phase ≥ 0.95	Single-phase ≥ 0.99	Three-phase ≥ 0.95
Current distortion with distorting load	$\leq 7\%$	Single-phase $\leq 7\%$	Three-phase $\leq 27\%$	Single-phase $\leq 7\%$	Three-phase $\leq 27\%$	Single-phase $\leq 7\%$	Three-phase $\leq 27\%$

BY PASS

Voltage range	180 – 264 Vac (selectable in Economy Mode and SMART ACTIVE MODE)						
Frequency range	Selected frequency ± 5 Hz						

BATTERY

Typical back-up	12'	20'	16'	12'
Recharge time	6 – 8 h			

OUTPUT

Rated voltage	220 / 230 / 240 Vac selectable $\pm 1\%$						
Static variation	1%						
Dynamic variation	$\leq 5\%$ in 20ms						
Waveform	Sinewave						
Voltage distortion with linear load	$< 2\%$						
Voltage distortion with distorting load	$< 5\%$						
Frequency	50 / 60 Hz selectable or with autorange						
Crest factor	3 : 1						
Rated power in VA/W	6000/4200	6500 / 4600	8000 / 5600	10000 / 7000			

OVERLOAD TIMES

100% < Load < 125%	2'
125% < Load < 150%	30 s
Load $\geq 150\%$	0.5 s

INSTALLATION INFORMATION

Efficiency		Input Single-phase	Input Three-phase	Input Single-phase	Input Three-phase	Input Single-phase	Input Three-phase
	91%	91%	92%	91%	92%	91%	92%
Efficiency		98%					
Line-interactive/Smart Active							
Operating temperature		0 – 40 °C					
Humidity		< 90 % non condensing					
Protection		Low battery – overcurrent – short-circuit - overvoltage - undervoltage – temperature					
Compliance	EN 50091–1–1, Directives 73 / 23 EEC and 93/68 /EEC	EN 50091-2 cl. A, Council Directive 89/336 EEC					
Color		Light gray RAL 7035					
Noise		< 40 dBA at 1 mt.					
Maximum input current*	29A	Single-phase 31 A	Three-phase* 11A	Single-phase 41 A	Three-phase* 15 A	Single-phase 50 A	Three-phase* 18 A
Differential input current**		10 mA					

VALUE OF THE OUTPUT PROTECTIONS FOR SELECTIVITY***

Normal fuses (GI)	In (Rated current)/7
Normal switches	In (Rated current)/7
Extra Fast fuses (EF)	In (Rated current)/2

* In the case of UPS with three-phase input and single-phase output, the cables and input protections must be calculated according to the value of the single-phase current in the case in which the UPS switches the load (single-phase) to input (three-phase). In this case, the single-phase load will be supported entirely on one of the three input phases.

** This value must be added to the differential current of the equipment.

*** Complying with these values, the UPS will be able to provide the power required to interrupt the output protection in the case of a short-circuit without switching the load to the mains supply.

Technical data

Description	Power	Back-up (min)	Dimensions (HWD) mm	Weights (Kg)	Code
Power Dialog Plus PWP600	6000VA/4200W	0	585x283x805	55	UM06060035RU
Power Dialog Plus PWP600	6000VA/4200W	12*	585x283x805	100	UM06060635RU
Power Dialog Plus PWP650	6500VA/4600W	0	735x283x805	63	UTM2060035RU
Power Dialog Plus PWP650	6500VA/4600W	20*	735x283x805	133	UTM2061135RU
Power Dialog Plus PWP800	8000VA/5600W	0	735x283x805	65	UTM2080035RU
Power Dialog Plus PWP800	8000VA/5600W	16*	735x283x805	135	UTM2080835RU
Power Dialog Plus PWP1000	10000VA/7000W	0	735x283x805	65	UTM2100035RU
Power Dialog Plus PWP1000	10000VA/7000W	12*	735x283x805	135	UTM2100635RU

* According to load applied (see back-up graph)

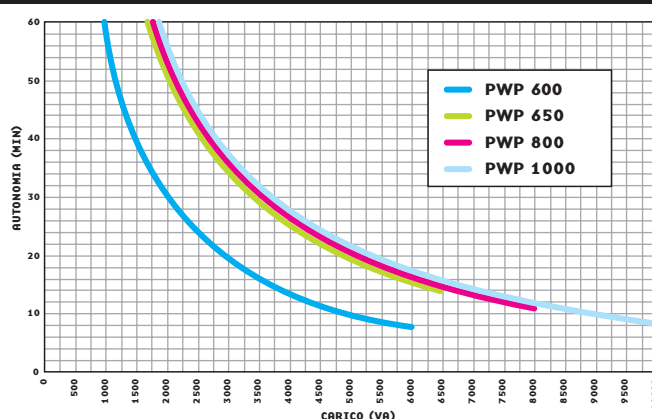
Back-up extension modules

UPS MODEL	Back-up (UPS + internal battery + cabinet)	Back-up (UPS 0' + cabinet)	Dimensions (HWD) Batt. Module	Weights (Kg) Batt. Module	Battery Module type	Code* (to be combined with that of UPS with standard back-up)
Power Dialog Plus 6000VA	25'	12'	735x283x805	80	BB216-7	ACCM0606RU-01
	30'	21'	735x283x805	120	BC216-12**	ACCM0606RU-02
	60'	48'	735x283x805	190	BC216-24**	ACCM0606RU-03
	120'	108'	2x(735x283x805)	380	2x(BC216-24)**	(2x) ACCM0606RU-03
Power Dialog Plus 6500VA	40'	20'	735x283x805	112	BB360-7	ACCTM210RU-01
	50'	35'	735x283x805	175	BC360-12**	ACCTM210RU-02
	95'	75'	2x(735x283x805)	350	2x(BC360-12)**	(2x) ACCTM210RU-02
	140'	120'	3x(735x283x805)	525	3x(BC360-12)**	(3x) ACCTM210RU-02
Power Dialog Plus 8000VA	30'	16'	735x283x805	112	BB360-7	ACCTM210RU-01
	40'	28'	735x283x805	175	BC360-12**	ACCTM210RU-02
	75'	59'	2x(735x283x805)	350	2x(BC360-12)**	(2x) ACCTM210RU-02
	110'	94'	3x(735x283x805)	525	3x(BC360-12)**	(3x) ACCTM210RU-02
Power Dialog Plus 10000VA	25'	12'	735x283x805	112	BB360-7	ACCTM210RU-01
	30'	21'	735x283x805	175	BC360-12**	ACCTM210RU-02
	60'	48'	2x(735x283x805)	350	2x(BC360-12)**	(2x) ACCTM210RU-02
	90'	78'	3x(735x283x805)	525	3x(BC360-12)**	(3x) ACCTM210RU-02

* The BC version includes the battery charger

** The BC type battery cabinets are available also without battery charger (version BB) BB216-12:ACCM060RU-05
BB216-24:ACCM0606RU-06
BB360-12:ACCTM210RU-04

Back-up graph



Options

Description	Dimensions (HWD) mm	Weights (Kg)	Code
Isolation transformer module for PWP600	500x400x265	80	ACCTM265NP
Isolation transformer module for PWP650	500x400x265	80	ACCTM265NP
Network adapter module on slot			ACCSA2XXRU-01
Communication software	See software section page 64 (PowerShield ² standard version included)		
LED-based remote control panel			ACCMRT20NP
Additional RS232 board			ACCTM2SUXX-01

MULTI DIALOG MDM/MDT

[MDM 10-20kVA single/single-phase three/single-phase]
[MDT 10-30kVA three-phase/three-phase]



The **MULTI DIALOG** series comprises the 10-15-20kVA single/single-phase, three/single-phase or 10-15-20-30 kVA three-phase models with double on-line conversion technology (VFI).

The load is always powered by the inverter which provides a sinusoidal output voltage, with filtered and stabilized voltage, waveform and frequency. The input and output filters also considerably increase the immunity of the load to mains supply disturbances and to surges.

For technology, top flight performance (standard selectable Economy Mode function), reliability, diagnostics (standard LCD display with 128 readouts, RS232 interfaces with **PowerShield²** software included, ESD input, slot for the network interface), **MULTI DIALOG** is the best solution for the supply of sensitive and vital "mission-critical" equipment and security devices (electromedical).

Note the simply installation: the UPS can be connected both to single-phase and three-phase mains.



- ① Language selection
- ② Input/output measurements
- ③ Controls/settings/ customizations
- ④ Event log
- ⑤ Buzzer reset
- ⑥ Time/date
- ⑦ Scroll back
- ⑧ Scroll forward

Buttons ⑦ and ⑧ are used to display detailed information about system control.



CHARACTERISTICS

- reliable, stabilized, filtered voltage (double on-line conversion technology (VFI according to EN50091-3 specifications) with filters for suppression of atmospheric disturbances
- high level reliability of the UPS assured by:
 - full microprocessor control
 - IGBT technology
- its 0.8 power factor makes it suitable for powering IT and industrial loads
- high level diagnostics: event log with 128 messages, states, measurements, alarms available on standard multi-language LCD display
- low consumption
 - high efficiency (92% thanks to the digital control and the IGBT technology)
 - standard "Economy Mode" function to increase efficiency (up to 98%): makes it possible to select Line Interactive (VI) technology for mains powering of not very sensitive loads for certain periods. The function is software programmable or can be set manually from the UPS.
- simple to install:
 - possibility of connecting the UPS both to single-phase and three-phase mains
 - possibility of calibrating the output voltage from the control panel (to offset voltage drops on the cables)
- maximum reliability and availability of power (modular parallel up to 4 units for redundant parallel (N+1) or power parallel)
- power factor correction of the load (input power factor of the UPS, close to 1)
- high level reliability of the batteries
 - automatic battery test
 - recharge compensated with temperature
- Emergency operation: the UPS can be set for operating only with mains absent (for emergency lights)

APPLICATIONS

- Local Area Networks (LAN)
- Servers
- Data centers
- Internet centers (ISP/ASP/POP)
- Industrial PLCs
- Cash registers
- Emergency devices (lights/alarms)
- Electro-medical devices
- Telecommunications devices



ADVANCED COMMUNICATION

- advanced, multi-platform communication, for all operating systems and network environments: **PowerShield²** supervision and shut-down software included, with SNMP agent, for Windows 95, 98, 2000, Me, NT 4.0, Novell operating systems. The UPS is equipped with a cable for direct connection to the PC (Plug and Play)
- double RS232 serial port
- slot for installation of mains adapter
- ESD (Emergency Switching Device) contact for UPS shut-down using remote emergency button
- remote control panel

SINGLE-PHASE MODELS

MDM1000

MDM1500

MDM2000

RECTIFIER INPUT

Rated power [kVA]	10	15	20
Rated voltage	230V single-phase or 400V three-phase + N		
Voltage range	± 20 %		
Frequency range	45 ÷ 65 Hz		
Power factor	0.95		

BATTERIES

Type	Sealed lead-acid		
Recharge time [h]	8		

INVERTER OUTPUT

Rated power [kVA]	10	15	20
Active power [kW]*	8	12/10.5*	16/12*
Number of phases	1		
Rated voltage [V]	230		
Voltage regulation range	200 ÷ 243 V		
Crest factor (Ipeak/Irms)	3 : 1		
Waveform	Sinewave		
Distortion with linear load	2 %		
Static stability	± 1 %		
Dynamic stability	± 5 % in 10 ms		
Frequency	50 / 60 Hz selectable		
Overload	125%150%200% of the rated current for 10' / 1' / 7''		

BYPASS

Rated voltage	230V		
Number of phases	1		
Permitted voltage range	±15 % (selectable from ± 5 % to ± 25 %)		
Rated frequency	50 / 60 Hz		
Permitted frequency range	±2 % (selectable from ± 1 % to ± 5 %)		

INSTALLATION INFORMATION

Input	Single-phase and three-phase		
Remote signaling	zero-potential contacts		
Remote controls	ESD and bypass		
Communication	Double RS232/C		
Operating temperature	0 + 40 °C		
Relative humidity	95 % (non condensing)		
Color	Light gray RAL 7035		
Audible noise	< 56 dBA		
Protection rating	IP20		
Efficiency	> 92%		
Compliance	Safety EN 50091-1 EMC EN 50091-2 Lev. A Directives 73/23-93/68-89/336 EEC		
Air flow (m3/h) (for installations in a closed environment)	320	320	480
Bypass input current	45A	68A	91A
Maximum rectifier input current	18A	27A	36A
Differential input current	100mA		

VALUE OF THE OUTPUT PROTECTIONS FOR SELECTIVITY**

Normal fuses (GI)	In (Rated current)/5.5
Normal switches (Curve C)	In (Rated current)/5.5
Extra Fast fuses	In (Rated current)/2

* With single-phase input.

** Complying with these values, the UPS will be able to provide the power required to interrupt the output protection in the case of a short-circuit without switching the load to the mains supply.

Technical data



Description	Power	Back-up Power factor 0.8	Dimensions Power factor 0.7	Weights (HWD) mm	Type (Kg)	Code
Multi Dialog MDM 1000*	10kVA/8kW	0'*** 0'***	1200x450x750	90	MDM1000-00	UTMM100035RUB
		8' 10'	1200x450x750	180	MDM1000-08	UTMM100735RUB
		11' 13'	1200x450x750	200	MDM1000-10	UTMM101135RUB
		15' 17'	1200x450x750	218	MDM1000-15	UTMM101535RUB
Multi Dialog MDM 1500*	15kVA/12kW	0'*** 0'***	1200x450x750	95	MDM1500-00	UTMM150035RUB
		8' 10'	1200x450x750	230	MDM1500-08	UTMM150735RUB
		11' 13'	1200x450x750	275	MDM1500-10	UTMM151135RUB
		15' 17'	1200x450x750	285	MDM1500-15	UTMM151535RUB
Multi Dialog MDM 2000*	20kVA/16W	0'*** 0'***	1200x450x750	110	MDM2000-00	UTMM200035RUB
		7' 9'	1200x450x750	245	MDM2000-07	UTMM200635RUB
		10' 12'	1200x450x750	300	MDM2000-10	UTMM201035RUB

* For parallel UPS (with parallel kit included) add -02 to the UPS code

(ex. MDM 1000 0' parallelable = UTMM100035RU-02

*** The 0' version does not include battery shelves and cables

Back-up extension modules

BATTERY MODULE TYPE	Dimensions (HWD) mm	Weights (Kg)	Code
BB384-12M	1200x450x750	160	ACCMDM12RU-01
BB384-38M	1200x555x720	563	ACCMDM38RU-01
BB576-12M	1200x450x750	240	ACCMDM12RU-02
BB576-38M	1200x860x720	845	ACCMDM38RU-02

UPS MODEL	Back-up COS FI 0.8	Back-up COS FI 0.7	Dimensions (HWD) Battery Module	Weights Battery Module	Type	Code Battery Module (UPS+batteries)
Multi Dialog MDM 10 kVA	30'	35'	1200x450x750	160	MDM1000-08+ BB384-12M	UTMM100735RUB+ ACCMDM12RU-01
	40'	46'	1200x450x750	160	MDM1000-15+ BB384-12M	UTMM101535RUB+ ACCMDM12RU-01
	65'	75'	1200x555x720	563	MDM1000-00+ BB384-38M	UTMM100035RUB+ ACCMDM38RU-01
Multi Dialog MDM 15 kVA	30'	35'	1200x450x750	240	MDM1500-08+ BB576-12M	UTMM150735RUB+ ACCMDM12RU-02
	35'	40'	1200x450x750	240	MDM1500-10+ BB576-12M	UTMM151135RUB+ ACCMDM12RU-02
	40'	46'	1200x450x750	240	MDM1500-15+ BB576-12M	UTMM151535RUB+ ACCMDM12RU-02
	65'	75'	1200x860x720	845	MDM1500-00+ BB576-38M	UTMM150035RUB+ ACCMDM38RU-02
Multi Dialog MDM 20 kVA	30'	35'	1200x450x750	240	MDM2000-07+ BB576-12M	UTMM200635RUB+ ACCMDM12RU-02
	40'	46'	1200x450x750	240	MDM2000-10+ BB576-12M	UTMM201035RUB+ ACCMDM12RU-02
	45'	55'	1200x860x720	845	MDM2000-00+ BB576-38M	UTMM200035RUB+ ACCMDM38RU-01
	60'	70'	1200x860x720	845	MDM2000-07+ BB576-38M	UTMM200635RUB+ ACCMDM38RU-02

Options

Description	Dimensions (HWD) mm	Weights (Kg)	Code
Isolation transformer module 400V three-phase 230V single-phase 10kVA	1200x450x750	140	ACCMRM10RU
Isolation transformer module 400V three-phase 230V single-phase 15kVA	1200x450x750	160	ACCMRM15RU
Isolation transformer module 400V three-phase 230V single-phase 20kVA	1200x450x750	188	ACCMRM20RU
MULTI DIALOG MDM CLEAN (for input THDi<9%)	add -01 to the UPS code		
Communication software	See Software section page 64	(PowerShield ² standard version included)	
LED-based remote control panel (see picture page22)			ACCMRT20NP
battery trays + cables (for MDM 10 kVA - 0')			ACCMDM01NP
battery trays + cables (for MDM 15/20 kVA 0')			ACCMDM02NP
Empty battery cabinet (16+16 battery 38 Ah)	1200x555x720	80	ACCMDM38RU-03
Empty battery cabinet (24+24 battery 38 Ah)	1200x860x720	100	ACCMDM38RU-04
Empty battery cabinet (16+16 battery 65 Ah)	1200x860x720	100	ACCMDM65RU
Empty battery cabinet (24+24 battery 65 Ah)	1800x860x740	190	

MULTI DIALOG MDT

THREE-PHASE MODELS

MDT1000

MDT1500

MDT2000

MDT3000

RECTIFIER INPUT

Rated power [kVA]	10	15	20	30
Rated voltage	400V three-phase + N			
Voltage range	± 20 %			
Frequency range	45 ÷ 65 Hz			
Power factor	0.95			

BATTERIES

Type	Sealed lead-acid			
Recharge time [h]	8			

INVERTER OUTPUT

Rated power [kVA]	10	15	20	30
Active power [kW]	8	12	16	24
Number of phases	3			
Rated voltage [V]	400			
Voltage regulation	Adjustable from 346 ÷ 422 V			
Crest factor (I _{peak} /I _{rms})	3 : 1			
Output current	15A	22A	29A	43.5A
Waveform	Sinewave			
Distortion with linear load	2 %			
Static stability	± 1 %			
Dynamic stability	± 5 % in 10 ms			
Frequency	50 / 60 Hz selectable			
Overload	125%150%200% of the rated current for 10'/ 1'/7''			

BYPASS

Rated voltage	400V			
Number of phases	3			
Permitted voltage range	±15 % (selectable from ± 5 % to ± 25 %)			
Rated frequency	50 / 60 Hz			
Permitted frequency range	±2 % (selectable from ± 1 % to ± 5 %)			

INSTALLATION INFORMATION

Input	Three-phase + N			
Remote signaling	zero-potential contacts			
Remote controls	ESD and bypass			
Communication	Double RS232/C			
Operating temperature	0 + 40 °C			
Relative humidity	95 % (non condensing)			
Color	Light gray RAL 7035			
Noise	< 56 dBA			
Protection rating	IP20			
Efficiency	> 92%			
Compliance	Safety EN 50091-1 EMC EN 50091-2 Lev. A Directives 73/23-93/68-89/336 EEC			
Air flow (m ³ /h) (for installations in a closed environment)	320	320	480	720
Bypass input current	15A	23A	30A	45A
Maximum rectifier input current	18A	27A	36A	54A
Differential input current	100mA			

VALUE OF THE OUTPUT PROTECTIONS FOR SELECTIVITY*

Normal fuses (GI)	In (Rated current)/5.5
Normal switches (Curve C)	In (Rated current)/5.5
Extra Fast fuses (EF)	In (Rated current)/2

* Complying with these values, the UPS will be able to provide the power required to interrupt the output Protection in the case of a short-circuit without switching the load to the mains supply.

Technical data

Description	Power	Back-up		Dimensions	Weights (HWD) mm	Type	Code (Kg)
		Power fact. 0.8	Power fact. 0.7				
Multi Dialog MDT 1000*	10kVA/8kW	0'	0'	1200x450x750	95	MDT1000-00	UTMT100045RUB
		8'	10'	1200x450x750	185	MDT1000-08	UTMT100745RUB
		10'	12'	1200x450x350	190	MDT1000-10	UTMT101145RUB
		15'	17'	1200x450x750	223	MDT1000-15	UTMT101545RUB
Multi Dialog MDT 1500*	15kVA/12kW	0'	0'	1200x450x750	100	MDT1500-00	UTMT150045RUB
		8'	10'	1200x450x750	235	MDT1500-08	UTMT150745RUB
		11'	13'	1200x450x750	280	MDT1500-10	UTMT151145RUB
		15'	17'	1200x450x750	290	MDT1500-15	UTMT151545RUB
Multi Dialog MDT 2000*	20kVA/16kW	0'	0'	1200x450x750	115	MDT2000-00	UTMT200045RUB
		7'	9'	1200x450x750	250	MDT2000-07	UTMT200645RUB
		10'	12'	1200x450x750	305	MDT2000-10	UTMT201045RUB
Multi Dialog MDT3000*	30kVA/24kW	0'	0'	1200x450x750	120	MDT3000-00	UTMT300045RUB
		6'	8'	1200x450x750	305	MDT3000-D7	UTMT300745RUB

*For parallel UPS (with parallel kit included), add -02 to the UPS code
(ex.: MDT 1000 0' parallelable = UTMT100045RU-02)

** The 0' version does not include battery shelves and cables

Table Codes
weights, dimensions

USP MODEL	Back-up		Dimensions (WHD) Battery Module	Weights (Kg) Battery Module	Type	Code Battery Module (UPS+batteries)
	Power fact. 0.8	Power fact. 0.7				
Multi Dialog MDT 10 kVA	30'	35'	1200x450x750	160	MDT1000-08+ BB384-12M	UTMT100745RUB+ ACCMMD12RU-01
	40'	46'	1200x450x750	160	MDT1000-15+ BB384-12M	UTMT101545RUB+ ACCMMD12RU-01
	65'	75'	1200x555x720	563	MDT1000-00+ BB384-38M	UTMT100045RUB+ ACCMMD38RU-01
Multi Dialog MDT 15 kVA	30'	35'	1200x450x750	240	MDT1500-08+ BB576-12M	UTMT150745RUB+ ACCMMD12RU-01
	35'	40'	1200x450x750	240	MDT1500-10+ BB576-12M	UTMT151145RUB+ ACCMMD12RU-01
	40'	46'	1200x450x750	240	MDT1500-15+ BB576-12M	UTMT151545RUB+ ACCMMD12RU-01
	65'	75'	1200x860x720	845	MDT1500-00+ BB576-38M	UTMT150045RUB+ ACCMMD38RU-02
Multi Dialog MDT 20 kVA	30'	35'	1200x450x750	240	MDT2000-07+ BB576-12M	UTMT200645RUB+ ACCMMD12RU-01
	40'	46'	1200x450x750	240	MDT2000-10+ BB576-12M	UTMT201045RUB+ ACCMMD12RU-01
	45'	55'	1200x860x720	845	MDT2000-00+ BB576-38M	UTMT200045RUB+ ACCMMD38RU-02
	60'	70'	1200x860x720	845	MDT2000-07+ BB576-38M	UTMT200645RUB+ ACCMMD38RU-02
Multi Dialog MDT 30 kVA	20'	23'	1200x450x750	240	MDT3000-07+ BB576-12M	UTMT300645RUB+ ACCMMD12RU-02
	26'	32'	2(1200x450x750)	480	MDT3000-00+ 2x(BB576-12M)	UTMT300045RUB+ 2x(ACCMMD12RU-02)
	30'	37'	1200x860x720	845	MDT3000-00+ BB576-38M	UTMT300045RUB+ ACCMMD38NP-01
	45'	51'	1200x860x720	845	MDT3000-07+ BB576-38M	UTMT300645RUB+ ACCMMD38NP-01
	60'	70'	1800x860x720	1318	MDT3000-00+ BB576-65M	vedi listino vedi listino

Options

Description	Dimensions (HWD) mm	Weights (Kg)	Code
Isolation transformer module 400V/400V three-phase 10kVA	1200x450x750	145	ACCMRT10NP-01
Isolation transformer module 400V/400V three-phase 15kVA	1200x450x750	165	ACCMRT15NP-01
Isolation transformer module 400V/400V three-phase 20kVA	1200x450x750	190	ACCMRT20NP-01
Isolation transformer module 400V/400V three-phase 30kVA	1200x450x750	215	ACCMRT30NP-01
Communication software	See Software section page 64 (PowerShield ² standard version included)		
MULTI DIALOG MDT CLEAN	(for input THDi<9%)		add -01 to the UPS code
LED-based remote control panel			ACCMRT20NP
Battery trays + cables (for MDT 10 kVA - 0' and for empty battery racks)			ACCMMD01NP
Battery trays + cables (for MDT 15/20 kVA - 0' and for empty battery racks)			ACCMMD02NP
Battery type 1265 (12V 65 Ah)	190x350x166	23,5	0604030006
Empty battery cabinet (16+16 battery 38 Ah)	1200x555x720	23,5	ACCMMD38RU-03
Empty battery cabinet (24+24 battery 38 Ah)	1200x860x720	100	ACCMMD38RU-04
Empty battery cabinet (16+16 battery 65 Ah)	1200x860x720	100	ACCMMD65RU
Empty battery cabinet (24+24 battery 65 Ah)	1800x860x740	190	



MASTER DIALOG

[RM8-20kVA three-phase/single-phase]

[RT10-40kVA three-phase/three-phase]

[RT60-80kVA three-phase/three-phase]

[RT100-160kVA three-phase/three-phase]

The **MASTER DIALOG** RM/RT comprises the 8-10-15-20kVA three/single-phase, 10-15-20-30-40-60-80-100-160 kVA three-phase models with double on-line conversion technology (VFI) with transformer on output at the inverter: the load is always powered by the inverter which provides a sinusoidal output voltage, with filtered and stabilized voltage, waveform and frequency.

The input and output filters also considerably increase the immunity of the load to mains supply disturbances and surges. **MASTER DIALOG** is compatible with the most critical industrial installations, thanks to its outstanding mechanical and electrical robustness guaranteed by:

- isolation transformer on the inverter
- extremely high short-circuit current (2.8In)
- BACK FEED protection against energy return to the mains



HWD 1200x555x720 mm



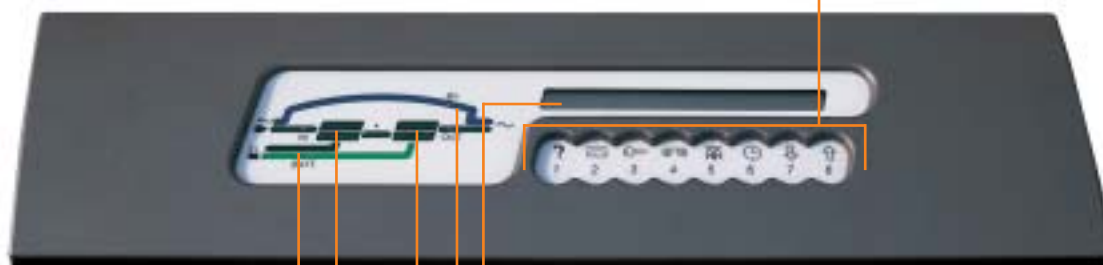
HWD 1400x800x740 mm



HWD 1400x1070x740 mm

MASTER DIALOG is equipped with **PowerShield²** software as standard

- 1 Language selection
- 2 Input/output measurements
- 3 Controls /settings/ customizations
- 4 Event log
- 5 Buzzer reset
- 6 Time/date
- 7 Scroll back
- 8 Scroll forward



- 9 Digital display
- 10 Bypass ON / Manual Bypass
- 11 Inverter ON / overload
- 12 Mains supply present
- 13 Functioning from batteries / end of discharge pre-alarm



CHARACTERISTICS

- reliable, stabilized, filtered voltage (double on-line conversion technology (VFI according to EN50091-3 specifications) with filters for suppression of atmospheric disturbances
- high level reliability of the UPS assured by:
 - extremely high short-circuit current (2.8In); this makes the UPS compatible with even the most difficult applications: transformers, lighting, drives, industrial processes)
 - full microprocessor redundant control (2 microprocessors)
 - isolation transformer on inverter output
 - IGBT technology
- its 0.8 power factor makes it suitable for powering of IT and industrial loads
- high level diagnostics: event log, states, measurements, alarms available on standard multi-language LCD display
- maximum care of the batteries temperature-dependent recharge
- protection against deep battery discharge
- simple to install:
 - possibility of inserting the UPS on any distribution system (neutral not required on rectifier input). Possibility of separating the rectifier/bypass power networks and of powering these with 2 even separate sources, without the need for galvanic isolation (necessary on certain UPS without output transformer).
 - possibility of regulating the output voltage (to offset voltage drops on the cables)
- maximum reliability and availability of power (parallel distributed up to 6 units for redundant (N+1) or power parallel)
- standard BACK FEED protection, against power return on the mains in the case of fault
- low consumption: assured by the selectable ECO-MODE function that makes it possible to power from the mains, when this is stable, guaranteeing very high efficiency (>98%, RT10000/RT16000 models)

ADVANCED COMMUNICATION

- advanced, multi-platform communication, for all operating systems and network environments: **PowerShield²** supervision and shut-down software included, with SNMP agent, for Windows 95, 98, 2000, Me, XP, Mac OSx, 9.x, Linux, NT 4.0, Novell operating systems. The UPS is equipped with a cable for direct connection to the PC (Plug and Play)

- RS232 serial port
- clean relay contacts
- ESD (Emergency Switching Device) input for UPS shut-down using remote emergency button
- input for switching to bypass by remote signal
- digital or LED-based remote control panel



APPLICATIONS

- Local Area Networks (LAN)
- Servers
- Data centers
- Internet centers (ISP/ASP/POP)
- Industrial PLCs
- Electro-medical devices
- Telecommunications devices
- Emergency devices (lights/alarms)
- Industrial processes

MASTER DIALOG RM

RM

RM 800
RM1000
RM1500
RM2000

RECTIFIER INPUT

Rated power [kVA]	8	10	15	20
Rated voltage	400V three-phase			
Voltage range	± 20 %			
Frequency range	45 ÷ 65 Hz			
Distortion of the current absorbed	30% (5% in RM-CLEAN version)			
Soft start	0 – 100% in 10sec			

RECTIFIER OUTPUT

Rated battery voltage	384V			
Maintenance voltage	Variable acc. to temperature [-0.5V x °C]			
Ripple	< 1%			

INVERTER OUTPUT

Rated power [kVA/KW]	8/6.4	10/8	15/12	20/16
Rated voltage [V]	230 single-phase			
Rated current [A]	35	43	65	87
Regulation of the output voltage	200 ÷ 244 V phase/neutral (from control panel)			
Crest factor	3 : 1			
Waveform	Sinewave			
Static stability	± 1 %			
Dynamic stability	± 5 % in 5 ms			
Rated frequency	Same as the input (autorange)			
Frequency stability (mains supply failure)	± 0.05 %			
Frequency stability (mains supply present)	± 2 % (adjustable ± 1% / ± 5% from control panel)			
Overload	125/150/200 % of the rated current for 10'/1'/7 s			
Inverter efficiency at rated load	92	93	93	93

BATTERY (Maintenance-free sealed lead-acid)

Maximum recharge current [A]	0,2 x C10			
------------------------------	-----------	--	--	--

BYPASS LINE

Rated current [A]	35	43	65	87
Rated voltage [V]	230 single-phase			
Permitted voltage range	±15 % (adjustable ± 10 % , ± 25 % from front panel)			
Rated frequency	50 / 60 Hz (autorange)			
Permitted frequency range	± 2 % (adjustable ± 1% , ± 5% from front panel)			
Overload capacity In x 10ms	18	14	12	14
Standard capabilities	BackFeed protection; separable bypass line			

INSTALLATION INFORMATION

Efficiency	91	92	92	92
Compliance	EN50091-1-1, EMC EN50091-2 Lev. A EC Directives 73/23-93/68-89/336			
Air flow (m3/h) (for installations in a closed environment)	310	372	558	744
Remote signaling	zero-potential contacts (mains power failure, UPS on bypass, end of discharge pre-alarm... output 12Vdc 80mA)			
Remote controls	ESD and bypass			
Computer interface	RS232/C			
Operating temperature	0 + 40 °C			
Maximum relative humidity non condensing	95 %			
Noise (dBA)	48 ÷ 54	48 ÷ 54	53 ÷ 60	53 ÷ 60
Protection rating	IP20			
Color of the cabinet	Light gray RAL 7035			
Rectifier maximum input current [A]	15	18	27	36
Bypass input current [A]	36	45	68	91
Differential input current*	100mA			

VALUE OF THE OUTPUT PROTECTION (FOR SELECTIVITY)**

Normal fuses (GI)	In (Rated current) / 5.5			
Normal switches (Curve C)	In (Rated current) / 5.5			
Extra fast fuses	In (Rated current) / 1.6			
Cable infeed	Bottom/rear			

* This value must be added to the differential current of the equipment.

** Complying with these values, the UPS will be able to provide the power required to interrupt the output Protection in the case of a short-circuit without switching the load to the mains supply.

Technical data

Description	Power	Back-up Power factor 0.8	Back-up Power factor 0.7	Dimensions Power factor 0.7	Weights (HWD) mm	Code (Kg)
Master Dialog RM800	8kVA/6.4kW	0'	0'	1200x555x720	190	UMRM080035RU
		10'	12'	1200x555x720	287	UMRM081035RU
		20'	23'	1200x555x720	325	UMRM082035RU
		35'	40'	1200x555x720	422	UMRM083535RU
		50'	57'	1200x555x720	460	UMRM085035RU
Master Dialog RM1000	10kVA/8kW	0'	0'	1200x555x720	200	UMRM100035RU
		6'	8'	1200x555x720	297	UMRM100635RU
		15'	17'	1200x555x720	335	UMRM101535RU
		30'	35'	1200x555x720	432	UMRM103035RU
		40'	45'	1200x555x720	470	UMRM104035RU
Master Dialog RM1500	15kVA/12kW	0'	0'	1200x555x720	220	UMRM150035RU
		10'	12'	1200x555x720	335	UMRM151035RU
		15'	17'	1200x555x720	425	UMRM151535RU
		20'	23'	1200x555x720	490	UMRM152035RU
Master Dialog RM2000	20kVA/16kW	0'	0'	1200x555x720	230	UMRM200035RU-03
		10'	12'	1200x555x720	462	UMRM201035RU-03
		15'	17'	1200x555x720	500	UMRM201535RU-03

For parallel UPS (with parallel kit included), add -02 to the UPS code
(ex.: RM800 0' parallelable = UMRM080035RU-02)

Back-up extension modules

UPS MODEL	Back-up* Power fact. 0.8	Back-up* Power fact. 0.7	Dimensions (HWD) Battery Module	Weights (Kg) Batt. Mod.	Type	Code to be combined with that of the UPS with Back-up 0')
Master Dialog RM 800	80'	91'	1200x555x720	563	BB384-38A	ACCMRM20NP-01
Master Dialog RM 1000	63'	72'	1200x555x720	563	BB384-38A	ACCMRM20NP-01
	130'	150'	1200x860x720	875	BB384-65B	ACCMRM20NP-02
Master Dialog RM 1500	40'	46'	1200x555x720	563	BB384-38A	ACCMRM20NP-01
	80'	92'	1200x860x720	875	BB384-65B	ACCMRM20NP-02
	95'	110'	2x(1200x555x720)	1126	2x(BB384-38A)	(2x) ACCMRM20NP-01
Master Dialog RM 2000	30'	35'	1200x555x720	563	BB384-38A	ACCMRM20NP-01
	55'	63'	1200x860x720	875	BB384-65B	ACCMRM20NP-02
	65'	75'	2x(1200x555x720)	1126	2x(BB384-38A)	(2x) ACCMRM20NP-01
	95'	110'	1400x860x720	1180	BB384-100D	ACCMRM20NP-16

* Back-up data referred to combination with UPS with back-up 0'
Different back-up values from those indicated are available on request.
Other types of batteries are also available (long-life; open vent; Nickel Cadmium)

Options

Description	Dimensions (HWD) mm	Weights (Kg)	Code
Isolation transformer three/single-phase module for RM800	1200x555x720	140	ACCMRM08RU
Isolation transformer three/single-phase module for RM1000	1200x555x720	140	ACCMRM10RU
Isolation transformer three/single-phase module for RM1500	1200x555x720	160	ACCMRM15RU
Isolation transformer three/single-phase module for RM2000	1200x555x720	188	ACCMRM20RU
RM800 CLEAN (THDi<5%)	1200x270x720	80	ACCMRM10NP-01
RM1000 CLEAN (THDi<5%)	1200x270x720	80	ACCMRM10NP-01
RM1500 CLEAN (THDi<5%)	1200x270x720	95	ACCMRM15NP-01
RM2000 CLEAN (THDi<5%)	1200x270x720	95	ACCMRM20NP-21
Kit for connection in parallel	/	/	ACCMRM20NP-14
Remote control panel with LCD	/	/	ACCMRM20NP-05
LED-based remote control panel	/	/	ACCMRT20NP
Empty cabinet for 38Ah battery including connection cable kit	1200x555x720	105	ACCMRM20NP-03
Empty cabinet for 65Ah battery including connection cable kit	1200x860x720	135	ACCMRM20NP-04
Communication software (full version)	see software section page 64 (PowerShield ² standard version included)		

MASTER DIALOG RT

RT

RT1000

RT1500

RT2000

RT3000

RT4000

RECTIFIER INPUT

Rated power [kVA]	10	15	20	30	40
Rated voltage	400V three-phase				
Voltage range	± 20 %				
Rated frequency	50 / 60 Hz autorange				
Frequency range	45 ÷ 65 HZ				
Distortion of the current absorbed	30% (5% in RT-CLEAN version)				
Soft start	0 – 100% in 10sec				

RECTIFIER OUTPUT

Ripple	< 1%				
--------	------	--	--	--	--

INVERTER OUTPUT

Rated power [kVA/KW]	10/8	15/12	20/16	30/24	40/32
Number of phases	3 + N				
Rated voltage [V]	400				
Rated current [A]	14	22	29	43	58
Regulation of the output voltage	Adjustable from 348V to 424V (from control panel)				
Crest factor	3 : 1				
Waveform	Sinewave				
Static stability	± 1 %				
Dynamic stability	± 5 % in 5 ms				
Rated frequency	Same as the input (autorange)				
Frequency stability (no mains)	± 0,05 %				
Frequency stability (Mains supply present)	±2 % (adjustable ± 1% / ± 5% from control panel)				
Overload	125/150/200 % of the rated current per 10'/1'/7 s				
Efficiency of the inverter at rated load	91	91	92	92	93

BATTERY (Maintenance-free sealed lead-acid)

Maximum recharge current [A]	0,2 x C10				
------------------------------	-----------	--	--	--	--

BYPASS LINE

Rated current [A]	14	22	29	43	58
Rated voltage [V]	400V three-phase				
Voltage range	±15 % (adjustable ± 10 % , ± 25 % from control panel)				
Rated frequency	50 / 60 Hz (autorange)				
Permitted frequency range	±2 % (adjustable ± 1% , ± 5% from control panel)				
Overload capacity In x 10ms	14	15	14	15	14
Standard capabilities	BackFeed protection; separable bypass line				

INSTALLATION INFORMATION

Efficiency	90	90	91	91	92
Compliance	EN50091-1-1, EMC EN50091-2 Lev. A Directives 73/23-93/68-89/336 EEC				
Remote signaling	zero-potential contacts (mains power failure, UPS on bypass, end of discharge pre-alarm... - output 12Vdc 80mA)				
Remote controls	ESD and remote bypass				
Standard interface	RS232/C				
Operating temperature	0 + 40 °C				
Maximum relative humidity non condensing	95 %				
Noise (dBA)	48 ÷ 54	48 ÷ 54	53 ÷ 60	53 ÷ 60	53 ÷ 60
Protection rating	IP20				
Color of the cabinet	Light gray RAL 7035				
Air flow (m3/h) (for installations in a closed environment)	496	682	868	1240	1488
Maximum input current rectifier [A]	18	28	37	55	72
Bypass input current [A]	15	23	30	45	61
Differential input current*	100mA				

VALUE OF THE OUTPUT PROTECTION (FOR SELECTIVITY)**

Normal fuses (GI)	In (Rated current) / 5.5
Normal switches (Curve C)	In (Rated current) / 5.5
Fast-blow fuses	In (Rated current) / 1.6
Cable infeed	bottom / rear

* This value must be added to the differential current of the equipment.

** Complying with these values, the UPS will be able to provide the power required to interrupt the output Protection in the case of a short-circuit without switching the load to the mains supply.

Technical data

Description	Power	Back-up Power factor 0.8	Back-up Power factor 0.7	Dimensions Power factor 0.7	Weights (HWD) mm	Code (Kg)
Master Dialog RT 1000*	10kVA/8kW	0'	0'	1200x555x720	210	UMRT100045RU
		6'	8'	1200x555x720	307	UMRT100645RU
		15'	17'	1200x555x720	345	UMRT101545RU
		30'	35'	1200x555x720	442	UMRT103045RU
		40'	46'	1200x555x720	480	UMRT104045RU
Master Dialog RT 1500*	15kVA/12kW	0'	0'	1200x555x720	220	UMRT150045RU
		10'	12'	1200x555x720	335	UMRT151045RU
		15'	17'	1200x555x720	452	UMRT151545RU
		20'	23'	1200x555x720	490	UMRT152045RU
Master Dialog RT 2000*	20kVA/16kW	0'	0'	1200x555x720	230	UMRT200045RU-03
		10'	12'	1200x555x720	462	UMRT201045RU-03
		15'	17'	1200x555x720	500	UMRT201545RU-03
Master Dialog RT 3000*	30kVA/24kW	0'	0'	1200x555x720	282	UMRT300045RU
Master Dialog RT 4000*	40kVA/32kW	10'	12'	1200x825x720	552	UMRT300845RU
		0'	0'	1200x555x720	330	UMRT400045RU

Table Codes
weights, dimensions

*For parallel UPS (with parallel kit included), add -02 to the UPS code
(ex. RT 1000 0' paralleable = UMRT100045-02)

UPS MODEL	Back-up* Power fact. 0.8	Back-up* Power fact. 0.7	Dimensions (HWD) Battery Module	Weights (Kg) Batt. Mod.	Type	Code to be combined with that of the UPS with Back-up 0'
Master Dialog RT 1000	63'	72'	1200x555x720	563	BB384-38A	ACCMRM20NP-01
	130'	150'	1200x860x720	875	BB384-65B	ACCMRM20NP-02
Master Dialog RT 1500	40'	46'	1200x555x720	563	BB384-38A	ACCMRM20NP-01
	80'	92'	1200x860x720	875	BB384-65B	ACCMRM20NP-02
	95'	110'	2x(1200x555x720)	1126	2X(BB384-38A)	(2x) ACCMRM20NP-01
	95'	110'	1400x860x720	1180	BB384-100D	ACCMRM20NP-16
Master Dialog RT 2000	30'	35'	1200x555x720	563	BB384-38A	ACCMRM20NP-01
	55'	63'	1200x860x720	875	BB384-65B	ACCMRM20NP-02
	65'	75'	2x(1200x555x720)	1126	2X(BB384-38A)	(2x) ACCMRM20NP-01
	95'	110'	1400x860x720	1180	BB384-100D	ACCMRM20NP-16
	95'	110'	2x(1400x860x720)	1840	2X(BB384-80D)	(2x) ACCMRM20NP-24
Master Dialog RT 3000	15'	17'	1200x555x720	563	BB384-38A	ACCMRM20NP-01
	35'	40'	1200x860x720	875	BB384-65B	ACCMRM20NP-02
	45'	51'	1400x860x720	920	BB384-80D	ACCMRM20NP-24
	60'	69'	1400x860x720	1180	BB384-100D	ACCMRM20NP-16
	100'	114'	2x(1400x860x720)	1840	2X(BB384-80D)	(2x) ACCMRM20NP-24
Master Dialog RT 4000	10'	12'	1200x555x720	563	BB384-38A	ACCMRM20NP-01
	21'	24'	1200x860x720	875	BB384-65B	ACCMRM20NP-02
	30'	35'	1400x860x720	920	BB384-80D	ACCMRM20NP-24
	45'	51'	1400x860x720	1180	BB384-100D	ACCMRM20NP-16
	55'	63'	2x(1200x860x720)	1750	2X(BB384-65B)	(2x) ACCMRM20NP-02

Back-up extension
modules

* Back-up data referred to combination with UPS with back-up 0'
Different back-up values from those indicated are available on request.
Other types of batteries are also available (long-life; open vent; Nickel Cadmium)

Description	Dimensions (HWD) mm	Weights (Kg)	Code
Isolation transformer module for RT1000	1200x555x720	145	ACCMRT10NP-01
Isolation transformer module for RT1500	1200x555x720	165	ACCMRT15NP-01
Isolation transformer module for RT2000	1200x555x720	190	ACCMRT20NP-01
Isolation transformer module for RT3000	1200x555x720	215	ACCMRT30NP-01
Isolation transformer module for RT4000	1200x555x720	260	ACCMRT40NP-01
RT1000 CLEAN (THDi<5%)	1200x270x720	290	ACCMRM10NP-01
RT1500 CLEAN (THDi<5%)	1200x270x720	315	ACCMRM15NP-01
RT2000 CLEAN (THDi<5%)	1200x270x720	335	ACCMRM20NP-21
RT3000 CLEAN (THDi<5%)	1200x270x720	387	ACCMRM20NP-22
RT4000 CLEAN (THDi<5%)	1200x270x720	435	ACCMRM20NP-23
Kit for connection in parallel			ACCMRM20NP-11
Remote control panel with LCD			ACCMRM20NP-05
LED-based remote control panel			ACCMRT20NP
38Ah empty cabinet with cable kit	1200x555x720	105	ACCMRM20NP-03
65Ah empty cabinet with cable kit	1200x860x720	135	ACCMRM20NP-04
Communication software (full version)	see software section page 64 (PowerShield ² standard version included)		

Options

MASTER DIALOG RT

RT

RT6000

RT8000

RECTIFIER INPUT

Rated power [kVA]	60	80
Rated voltage	400V three-phase	
Voltage range	± 20 %	
Rated frequency	50 / 60 Hz autorange	
Frequency range	45 ÷ 65 Hz	
Distortion of the current absorbed	30% (5% in RT-CLEAN version)	
Soft start	0 – 100% in 10sec	

RECTIFIER OUTPUT

Ripple	< 1%	
--------	------	--

INVERTER OUTPUT

Rated power [kVA/KW]	60/48	80/64
Number of phases	3 + N	
Rated voltage [V]	400	
Rated current [A]	87	115
Regulation of the output voltage	Adjustable from 348V to 424V (from control panel)	
Crest factor	3 : 1	
Waveform	Sinewave	
Static stability	± 1 %	
Dynamic stability	± 5 % in 5 ms	
Rated frequency	Same as the input (autorange)	
Frequency stability (mains supply not present)	± 0,05 %	
Frequency stability (mains supply present)	±2 % (adjustable ± 1% / ± 5% from control panel)	
Overload	125/150/200 % of the rated current per 10'/1'/7 s	
Efficiency of the inverter at rated load	93	93

BATTERY (Maintenance-free sealed lead-acid)

Maximum recharge current [A]	0.2 x C10	
------------------------------	-----------	--

BYPASS LINE

Rated current [A]	87	115
Rated voltage [V]	400V three-phase	
Permitted voltage range	±15 % (adjustable ± 10 %, ± 25 % from control panel)	
Rated frequency	50 / 60 Hz (autorange)	
Permitted frequency range	±2 % (adjustable ± 1%, ± 5% from control panel)	
Overload capacity In x 10ms	12	11
Standard capabilities	BackFeed protection; separable bypass line	

INSTALLATION INFORMATION

Efficiency	92	92
Compliance	EN50091-1-1, EMC EN50091-2 Lev. A Directives 73/23-93/68-89/336 EEC	
Remote signaling	zero-potential contacts (mains supply failure, UPS on bypass, end of discharge pre-alarm... - output 12Vdc 80mA)	
Remote controls	ESD and remote bypass	
Standard interface	RS232/C	
Operating temperature	0 + 40 °C	
Maximum relative humidity non condensing	95 %	
Noise (dBA)	53 ÷ 62	
Protection rating	IP20	
Color of the cabinet	Light gray RAL 7035	
Air flow (m3/h) (for installations in a closed environment)	2232	2960
Maximum input current rectifier [A]	100	125
Bypass input current [A]	91	121
Differential input current*	100mA	

VALUE OF THE OUTPUT PROTECTION (FOR SELECTIVITY)**

Normal fuses (GI)	In (Rated current) / 5.5
Normal switches (Curve C)	In (Rated current) / 5.5
Fast-blow fuses	In (Rated current) / 1.6
Cable infeed	bottom/rear

* This value must be added to the differential current of the equipment.

** Complying with these values, the UPS will be able to provide the power required to interrupt the output protection in the case of a short-circuit without switching the load to the mains supply.

Technical data

Description	Power	Dimensions (HWD) mm	Weights (Kg)	Code
Master Dialog RT6000*	60kVA/48kW	1400x800x740	450	UMRT600045RU
Master Dialog RT8000*	80kVA/64kW	1400x800x740	555	UMRT800045RU

*For parallel UPS (with parallel kit included), add -02 to the UPS code
(ex. RT6000 parallelable = UMRT600045RU-02)

Back-up extension modules

UPS MODEL*	Back-up* Power fact. 0.8	Back-up* Power fact. 0.7	Dimensions (HWD) Battery Module	Weights (Kg) Batt. Mod.	Type	Code to be combined with that of the UPS with Back-up 0')
Master Dialog RT 6000	6'	8'	1400x555x740	578	BB384-38C	ACCMRM20NP-09
	12'	14'	1400x860x740	890	BB384-65D	ACCMRM20NP-10
	15'	17'	1400x860x740	920	BB384-80D	ACCMRM20NP-24
	25'	29'	1400x860x740	1180	BB384-100D	ACCMRM20NP-16
	32'	37'	2x(1400x860x740)	1780	2X(BB384-65D)	(2x) ACCMRM20NP-10
	45'	52'	2x(1400x860x740)	1840	2X(BB384-80D)	(2x) ACCMRM20NP-24
	60'	70'	2x(1400x860x740)	2360	2X(BB384-100D)	(2x) ACCMRM20NP-16
	70'	80'	3x(1400x860x740)	2760	3X(BB384-80D)	(3x) ACCMRM20NP-24
Master Dialog RT 8000	8'	9'	1400x860x740	890	BB384-65D	ACCMRM20NP-10
	10'	12'	1400x860x740	920	BB384-80D	ACCMRM20NP-24
	15'	17'	1400x860x740	1180	BB384-100D	ACCMRM20NP-16
	20'	23'	2x(1400x860x740)	1780	2X(BB384-65D)	(2x) ACCMRM20NP-10
	30'	35'	2x(1400x860x740)	1840	2X(BB384-80D)	(2x) ACCMRM20NP-24
	40'	46'	2x(1400x860x740)	2360	2X(BB384-100D)	(2x) ACCMRM20NP-16
	50'	57'	3x(1400x860x740)	2760	3X(BB384-80D)	(3x) ACCMRM20NP-24
	65'	75'	3x(1400x860x740)	3540	3X(BB384-100D)	(3x) ACCMRM20NP-16

* Different back-up values are available on request. Other types of batteries are also available.
(long life; open pot; Nickel Cadmium)

Options

Description	Dimensions (HWD) mm	Weights (Kg)	Code
Isolation transformer module for RT6000	1400x640x720	380	ACCMRT60NP-01
Isolation transformer module for RT8000	1400x640x720	430	ACCMRT80NP-01
RT6000 CLEAN (THDi<5%)	1400x270x740	145	ACCMRM60NP-01
RT8000 CLEAN (THDi<5%)	1400x270x740	145	ACCMRM20NP-20
Kit for connection in parallel	/	/	ACCMRM20NP-11
Remote control panel with LCD	/	/	ACCMRM20NP-05
LED-based remote control panel	/	/	ACCMRT20NP
38Ah empty cabinet with cable kit	1400x555x740	120	ACCMRM20NP-06
65Ah empty cabinet with cable kit	1400x860x740	150	ACCMRM20NP-07
100Ah empty cabinet with cable kit	1400x860x740	150	ACCMRM20NP-12



MASTER DIALOG RT

RT

RT10000
RT12000
RT16000

RECTIFIER INPUT

Rated power [kVA]	100	120	160
Rated voltage	400V three-phase		
Voltage range	± 20 %		
Rated frequency	50 / 60 Hz autorange		
Frequency range	45 ÷ 65 Hz		
Distortion of the current absorbed	30% (5% in RT-CLEAN version)		
Soft start	0 – 100% in 10sec		

RECTIFIER OUTPUT

Ripple	< 1%		
--------	------	--	--

INVERTER OUTPUT

Rated power [kVA/KW]	100/80	120/96	160/128
Number of phases	3 + N		
Rated voltage [V]	400		
Rated current [A]	145	174	232
Regulation of the output voltage	Adjustable from 348V to 424V (from control panel)		
Crest factor	3 : 1		
Waveform	Sinewave		
Static stability	± 1 %		
Dynamic stability	± 5 % in 5 ms		
Rated frequency	Same as the input (autorange)		
Frequency stability (mains supply not present)	± 0,05 %		
Frequency stability (mains supply present)	±2 % (adjustable ± 1% / ± 5% from control panel)		
Overload	125/150/200 % rated current for 10'/1'/7 s		
Efficiency of the inverter at rated load	94	94	95

BATTERY (Maintenance-free sealed lead-acid)

Maximum recharge current [A]	0,2 x C10		
------------------------------	-----------	--	--

BYPASS LINE

Rated current [A]	145	174	232
Rated voltage [V]	400V three-phase		
Permitted voltage range	±15 % (adjustable ± 10 %, ± 25 % from control panel)		
Rated frequency	50 / 60 Hz (autorange)		
Permitted frequency range	±2 % (adjustable ± 1%, ± 5% from control panel)		
Overload capacity In x 10ms	12	10	10
Standard capabilities	BackFeed protection; separable bypass line		

INSTALLATION INFORMATION

Efficiency	93	93	93
Compliance	EN50091-1-1, EMC EN50091-2 Lev. A Directives 73/23-93/68-89/336 EEC		
Remote signaling	zero-potential contacts (mains power failure, UPS on bypass, end of discharge pre-alarm... - output 12Vdc 80mA)		
Remote controls	ESD and remote bypass		
Standard interface	RS232/C		
Operating temperature	0 + 40 °C		
Maximum relative humidity non condensing	95 %		
Noise (dBA)	54 ÷ 62		
Protection rating	IP20		
Color of the cabinet	Light gray RAL 7035		
Air flow (m3/h) (for installations in a closed environment)	3700	4400	5800
Maximum input current rectifier [A]	160	190	250
Bypass input current [A]	152	182	243
Differential input current*	100mA		

VALUE OF THE OUTPUT PROTECTION (FOR SELECTIVITY)**

Normal fuses (GI)	In (Rated current) / 5.5
Normal switches (Curve C)	In (Rated current) / 5.5
Fast-blow fuses	In (Rated current) / 1.6
Cable infeed	bottom / rear

* This value must be added to the differential current of the equipment.

** Complying with these values, the UPS will be able to provide the power required to interrupt the output protection in the case of a short-circuit without switching the load to the mains supply.

Technical data

Description	Power	Dimensions (HWD) mm	Weights (Kg)	Code
Master Dialog RT10000	100kVA/80kW	1400x1070x740	650	UMRT1K0045RU
Master Dialog RT12000	120kVA/96kW	1400x1070x740	730	UMRT1K2045RU
Master Dialog RT16000	160kVA/128kW	1400x1070x740	900	UMRT1K6045RU

For parallel UPS (with parallel kit included) add -02 to the UPS code
(ex. RT10000 parallelable = UMRT1K0045RU-02)

Back-up extension modules**

UPS MODEL*	Back-up Power factor 0.8	Back-up	Dimensions (HWD) Power factor 0.7	Weights (Kg) Battery Module	Type Batt. Mod.
Master Dialog RT 10000	7'	8'	1800x860x740	1030	36 batt. 1265
	10'	12'	1800x860x740	1054	36 batt. 1280
	15'	17'	1800x860x740	1342	36 batt. 12100
	20'	23'	2x(1800x860x740)	2072	72 batt. 1265
	26'	30'	2x(1800x860x740)	2108	72 batt. 1280
	35'	40'	2x(1800x860x740)	2684	72 batt. 12100
Master Dialog RT 12000	60'	70'	3x(1800x860x740)	4026	108 batt. 12100
	7'	8'	1800x860x740	1130	40 batt. 1265
	10'	12'	1800x860x740	1150	40 batt. 1280
	12'	14'	1800x860x740	1470	40 batt. 12100
	18'	19'	2x(1800x860x740)	2260	80 batt. 1265
	23'	25'	2x(1800x860x740)	2300	80 batt. 1280
Master Dialog RT 16000	32'	35'	2x(1800x860x740)	2940	80 batt. 12100
	52'	60'	3x(1800x860x740)	4410	120 batt. 12100
	60'	70'	4x(1800x860x740)	4600	160 batt. 1280
	9'	11'	1800x860x740	1470	40 batt. 12100
	14'	16'	2x(1800x860x740)	2260	80 batt. 1265
	24'	27'	2x(1800x860x740)	2940	80 batt. 12100
	30'	35'	3x(1800x860x740)	3390	120 batt. 1280
	50'	57'	4x(1800x860x740)	5880	160 batt. 12100

* Different back-up values are available on request. Other types of batteries are also available (long life; open pot; Nickel Cadmium)

**In view of the dimensions and weight of the battery modules, these will be assembled at the installation site.

The No. and type of batteries + No. of cabinets must be specified in this order:

for example 36 batteries 1265 on 1 cabinet: code = 36 x (0604030006) + 1 x (ACCMRM20NP-18)

Cabinets/batteries

Description	Dimensions (HWD) mm	Weight (Kg)	Code
Empty cabinet for 36/40 batt. max 100Ah, including connection cable kit	1800x860x740	190	ACCMRM20NP-18
Battery type 1265	190x350x166	23,5	0604030006
Battery type 1280	183x355x167	24	0604030013
Battery type 12100	227x330x171	32	0604030046

Options

Description	Dimensions (HWD) mm	Weights (Kg)	Code
Isolation transformer module for RT10000	1400x640x720	480	ACCMRT100NP-01
Isolation transformer module for RT12000	1400x640x720	500	ACCMRT120NP-01
Isolation transformer module for RT16000	1400x640x720	500	see price list
RT10000 CLEAN (THDi<5%)	1400x270x740	180	ACCMRM100NP-01
RT12000 CLEAN (THDi<5%)	1400x270x740	180	ACCMRM120NP-01
RT16000 CLEAN (THDi<5%)	1400x270x740	200	ACCMRM160NP-01
Kit for connection in parallel	/	/	ACCMRM20NP-11
Remote control panel with LCD	/	/	ACCMRM20NP-05
LED-based remote control panel (see picture page 20)	/	/	ACCMRT20NP
Communication software (full version)	see software section page 64	(PowerShield ² standard version included)	

DIALOG POWER CENTRE2

[200-800 kVA three-phase/three-phase]



APPLICATIONS:

- Local Area Networks (LAN)
- Servers
- Data centers
- Internet centers (ISP/ASP/POP)
- Industrial PLCs
- Electro-medical devices
- Telecommunications devices
- Emergency devices (lights/alarms)
- Industrial processes

The **DIALOG POWER CENTRE2** range comprises the 200-250-300-400-500-600-800kVA three-phase models and 30-40-60-80 kVA three/single-phase with double conversion on-line technology (VFI) with transformer in output at the inverter.

The load is always powered by the inverter which provides a sinusoidal output voltage, with filtered and stabilized voltage, waveform and frequency. The input and output filters also considerably increase the immunity of the load to mains supply disturbances and to surges.

DIALOG POWER CENTRE2 is compatible with the most critical industrial installations thanks to its mechanical and electrical robustness assured by:

- isolation transformer on the inverter
- extremely high short-circuit current
- sinusoidal absorption (THDi up to 5% DPC2 CLEAN version)

SPECIFIC SOLUTIONS

The UPS can be adapted to your requirements. Consult RIELLO UPS for offers and feasibility about "specific solutions" and options not listed in this catalog.

CHARACTERISTICS

- reliable, stabilized, filtered voltage (double on-line conversion technology (VFI according to EN50091-3 specifications) with filters for suppression of atmospheric disturbances
- high level reliability of the UPS assured by:
 - extremely high short-circuit current (this makes the UPS compatible with even the most difficult applications: transformers, lighting, drives, industrial processes)
 - isolation transformer on inverter output
 - IGBT technology

- minimum impact on the mains supply: distortion of the input current up to 5% which guarantees sinusoidal absorption without creating resonance phenomena with other line equipment (power factor correction capacitors). In addition, distortion does not depend on line parameters such as impedance and frequency. **DIALOG POWER CENTRE2** makes it possible to economize when scaling the power source (isolation transformer or generator).
- high level diagnostics: event log, states, measurements, alarms available on standard multi-language LCD display
- maximum reliability and availability of power (parallel distributed or centralized for redundant (N+1) or power parallel)
- ESD (Emergency Switching Device) input for UPS shut-down using remote emergency button

OPTIONS

Various options are available to configure a back-up "system" tailored to your requirements; some of these are given in the list below:

- isolation transformers
- phase shift transformers
- various types of batteries (Normal Life - long Life) and technology (sealed - open pot - NiCd) with various hours of back-up
- communication software
- back feed protection
- automatic battery circuit breaker (for remote control)

MODELS

MODELS	DPC2 30	DPC2 40	DPC2 60	DPC280	DPC2 200	DPC2 250	DPC2 300	DPC2 400	DPC2 500	DPC2 600	DPC2 800
								12 pulses	12 pulses	12 pulses	12 pulses
RECTIFIER INPUT											
Rated power (kVA)	30	40	60	80	200	250	300	400	500	600	800
Rated voltage	380-400-415V three phase										
Voltage range	+15/-15%										
Frequency range	50/ 60 Hz ± 5%										
Distortion of the current absorbed	up to 5%										
RECTIFIER OUTPUT											
Ripple	< 1%										
INVERTER OUTPUT											
Rated power (kVA)	30	40	60	80	200	250	300	400	500	600	800
cos W 0.8											
Rated power (kW)	24	32	48	64	160	200	240	320	400	480	640
Number of phases	1			3 + N							
Rated voltage [V]	380-400-415V three phase +N										
Crest factor at rated power (Ipeak/Irms)	3 : 1										
Waveform	Sinewave										
Static stability	± 1 %										
Dynamic stability	± 5 % in 5 ms										
Rated frequency	50 Hz										
Frequency stability											
- Without synchronism	± 0,05 %										
- With synchronism on mains	±2 %										
Overload	125/150% of the rated current for 10’/1’										
BATTERY											
Type	Maintenance-free sealed lead-acid										
Maximum recharge current [A]	0,2 x C10										
BYPASS LINE											
Rated current [A]	130	174	261	348	290	362	435	580	725	870	1160
Rated voltage [V]	220-230-240 single-phase			400V	three-phase						
Rated frequency	50 / 60 Hz										
INFORMATION ABOUT THE SYSTEM											
	1150	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Dimensions (HWD)	650	1100	1100	1100	1500	2160	2360	2920	3880	4780	4780
	700	800	800	800	900	900	900	900	900	900	900
Weights (Kg) VERSION											
DIALOG POWER	260	470	610	750	2100	2500	2800	4000	4500	5000	5500
CENTRE CLEAN (TDHi<6%)											
Efficiency	91	91	91	91	92	92	93	93	94	94	94
Standard interface	RS232/C-ESD input / Dry contacts/RS485										
Operating temperature	0 + 40 °C										
Relative humidity non condensing	95 %										
Noise (dBA)	65	65	65	65	65	65	65	65	78	78	78
Protection rating	IP20										
Color of the cabinet	Light gray RAL 7035										
Compliance	EN50091-1-1, EMC EN50091-2 Lev. A Directives 73/23-93/68-89/336 EEC										

Technical data

SYSTEM CONFIGURATION

The Power Centre2 range features a wide range of options able to solve all your system engineering problems. These are not single products but real UPS that must be engineered after a careful analysis of your problems, with particular attention also being paid to standards and system configuration. This is why we ask you to contact our experts.

DIALOG ACTIVE RACK

[500VA-2000VA SINGLE-PHASE]



The **DIALOG ACTIVE RACK** series comprises the 500-1000-1500-2000VA models with digital Line Interactive (VI) technology. The load is powered by the mains which, when present, has amplitude stabilized by the AVR and is filtered of overvoltages and surges. In the case of a mains failure, the load will be powered by the inverter with pure sinewave long enough to permit shut-down of the computer systems by the **PowerShield²** software which is standard. The UPS also integrates an outlet for PC networks and telephone line, for filtering and complete protection of the installation.

For advanced communication, top flight performance (standard power share function), **DIALOG ACTIVE** is the solution for more demanding users who require protection and fully automatic control of the power system.

INDICATIONS AND CONTROLS

- 1 Battery efficiency
- 2 Load applied
- 3 Mains-powered functioning
- 4 Back-up
- 5 Stand-by/Battery to be replaced
- 6 Stabilizer AVR
- 7 UPS ON control
- 8 Battery test control

APPLICATIONS:

- Small/medium computer networks
- Local Area Networks (LAN)
- Workstations
- Servers
- POS (Point of Sale) systems

CHARACTERISTICS

- mains supply stabilization and filtering
Line Interactive (VI) technology with AVR and filters for the suppression of atmospheric disturbances)
- high quality output voltage
pure sinewave voltage (distortion <2%)
- high level immunity to surges (6kV according to IEC801-5)
- possibility of switching on the UPS without the mains supply present (Cold Start capability)
- integrated protection for PC networks and telephone line/modem
- high level reliability of the batteries (automatic battery test)

ADVANCED COMMUNICATION

- advanced, multi-platform communication for all operating systems and network environments: **PowerShield²** supervision and shut-down software included, with SNMP agent, for Windows 95, 98, 2000, Me, NT 4.0, Novell operating systems.
- USB or RS232 serial port (selectable)
- equipped with slot for integration of the SNMP agent on the UPS

2-YEAR WARRANTY

MODELS

POWER
INPUT

DAR 50	DAR 75	DAR 100	DAR 150	DAR 200
500VA/335W	750VA/500W	1000VA/670W	1500VA/1000W	2000VA/1340W

Rated voltage	230 VAC
Range with mains supply present	230V (-25 / + 21)%
Frequency	50 – 60 Hz with autorange
Frequency range	± 5 Hz

OUTPUT

Rated voltage	230 VAC
Voltage in mains operation	230 V (-15 / +11%)
Frequency	50 – 60 Hz with autorange
Voltage in battery operation	230V + 5%
Waveform	Sinewave
Distortion	<2%

BATTERY

Type	Maintenance-free sealed lead-acid
Recharge time	8 h

OTHER DATA

Operating temperature	0 ÷ 40 °C
Humidity	<90%
Protection	Overload – short-circuit – overvoltage – undervoltage – temperature low battery
Safety compliance	EN 50091-1-1 and Directives 73 / 23 EEC and 93 / 68 EEC
EMC conformance	EN 50091 – 2 cl. B and Council Directive 89 / 336 EEC
Surge capability	IEC 801-5 6 KV 1.2 / 50 µsec ; 3 KA 8 / 20 µsec differential
Color	dark gray RAL 5004
Noise	< 40 dBA at 1 m.

Technical data

Description	Power	Back-up (min)	Dimensions (HWD) mm	Weights (Kg)	Code
Dialog Active Rack DAR50	500VA/335W	13	89x483x450	19	ULR1050835RU
Dialog Active Rack DAR75	750VA/500W	8	89x483x450	20	ULR1070535RU
Dialog Active Rack DAR100	1000VA/670W	8	89x483x450	21	ULR1100535RU
Dialog Active Rack DAR150	1500VA/1000W	10	133x483x450	26	ULR1150635RU
Dialog Active Rack DAR200	2000VA/1340W	10	133x483x450	34	ULR2200635RU
By-pass manuale			89x483x380	2	ACCBYPXXNP-01
Communication software		See software section page 64			

Table Codes
weights, dimensions

Back-up extension modules

UPS MODEL*	Back-up*	Dimensions (HWD) mm	Weights Kg	Type	Code (to be combined a UPS with standard back-up)
DAR200	22'	133x483x550	18	BBR60-7	ACCH1R15RU-07
	30'	178x483x430	30	BCR60-12*	ACCH1R15RU-01
	60'	178x483x430	57	BCR60-24*	ACCH1R15RU-02

* includes auxiliary battery charger for faster recharge

DIALOG ACTIVE RACK

[2200VA-5000VA single-phase]



The **DIALOG ACTIVE RACK** series comprises the 2200-3000-4000-5000VA models with digital Line Interactive (VI) technology. The load is powered by the mains which, when present, has amplitude stabilized by the AVR and is filtered of overvoltages and surges.

In the case of a mains failure, the load will be powered by the inverter with a pure sinewave long enough to permit shut-down of the computer systems by the **PowerShield²** software which is standard. The UPS also integrates an outlet for PC networks and telephone line, for filtering and complete protection of the installation.

For advanced communication, top flight performance (standard power share function), **DIALOG ACTIVE RACK** is the solution for more demanding users who require complete protection and fully automatic control of the power system.

INDICATIONS AND CONTROLS

- 1 Battery efficiency
- 2 Load applied
- 3 Input voltage / Battery charge
- 4 Mains out of range
- 5 Stand-by
- 6 Overtemperature
- 7 Wait
- 8 Alarm
- 9 UPS ON command
- 10 Buzzer reset

APPLICATIONS:

- Small/medium computer networks
- Local Area Networks (LAN)
- Workstations
- Servers
- POS (Point of Sale) systems

CHARACTERISTICS

- mains supply stabilization and filtering line Interactive (VI) technology with AVR and filters for suppression of atmospheric disturbances
- high quality output voltage (pure sinewave voltage (distortion <2%))
- high level immunity to line overvoltages (480joules/6.5kA)
- high level reliability of the batteries (recharge according to temperature and automatic battery test)
- possibility of swapping the batteries
- fast battery recharge (<2h)
- possibility of increasing back-up to several hours

ADVANCED COMMUNICATION

- advanced, multi-platform communication for all operating systems and network environments: **PowerShield²** supervision and shut-down software included, with SNMP agent.
- USB or RS232 serial port (selectable)
- equipped with slot for integration of the SNMP agent on the UPS

2-YEAR WARRANTY



MODELS

POWER

INPUT

Rated voltage	220-230-240 VAC
Voltage range	175 – 283 VAC
Frequency	50 Hz

OUTPUT

Rated voltage	220-230-240 VAC
Voltage in mains operation	230 V (-12 / +12%)
Frequency	50 Hz
Voltage in battery operation	230V ± 2%
Waveform	Sinewave
Peak factor	4:1
Distortion	<2%

BATTERIES

Type	Maintenance-free sealed lead-acid
Recharge time	2 h

OTHER DATA

Operating temperature	0 ÷ 40 °C
Humidity	<90%
Safety compliance	EN 50091-1-1 and Directive 73 / 23 EEC, Directive 93 / 68 EEC
EMC conformance	EN 50091 – 2 cl. A and Directive 89 / 336 EEC
Line overvoltage suppression capacity	480joules/6.5kA
Protection rating of the enclosure	IP21
Color	dark gray RAL 5004
Noise	< 35 dBA at 1 m

Technical data

Table Codes
weights,
dimensions

Description	Power	Back-up (min)	Dimensions (HWD) mm	Weights (Kg)	Code
Dialog Active Rack DAR220	2200VA/1540W	12	(89+133)x483x440	44	ULR3220835RU-E1
Dialog Active Rack DAR300	3000VA/2100W	12	(89+133)x483x440	54	ULR3300835RU-E1
Dialog Active Rack DAR400	4000VA/2800W	12	(133+133)x483x440	62	ULR3400835RU-E1
Dialog Active Rack DAR500	5000VA/3500W	12	(133+133)x483x440	75	ULR3500835RU-E1

Back-up extension modules

UPS MODEL	Back-up	Dimensions (HWD) mm	Weights Kg	Code to be combined with that of the UPS with Back-up standard)
1 battery extension module for 2200VA	26'	133x483x440	23	ACCLR322NP-N1
2 battery extension modules for 2200VA	41'	2x(133x483x440)	46	(2x)ACCLR322NP-N1
3 battery extension modules for 2200VA	57'	3x(133x483x440)	69	(3x)ACCLR322NP-N1
4 battery extension modules for 2200VA	75'	4x(133x483x440)	92	(4x)ACCLR322NP-N1
1 battery extension module for 3000VA	26'	133x483x440	32	ACCLR330NP-N1
2 battery extension modules for 3000VA	41'	2x(133x483x440)	64	(2x)ACCLR330NP-N1
3 battery extension modules for 3000VA	57'	3x(133x483x440)	96	(3x)ACCLR330NP-N1
4 battery extension modules for 3000VA	75'	4x(133x483x440)	128	(4x)ACCLR330NP-N1
1 battery extension module for 4000VA	26'	133x483x440	41	ACCLR340NP-N1
2 battery extension modules for 4000VA	41'	2x(133x483x440)	82	(2x)ACCLR340NP-N1
3 battery extension modules for 4000VA	57'	3x(133x483x440)	123	(3x)ACCLR340NP-N1
4 battery extension modules for 4000VA	75'	4x(133x483x440)	164	(4x)ACCLR340NP-N1
1 battery extension module for 5000VA	26'	133x483x440	50	ACCLR350NP-N1
2 battery extension modules for 5000VA	41'	2x(133x483x440)	100	(2x)ACCLR350NP-N1
3 battery extension modules for 5000VA	57'	3x(133x483x440)	150	(3x)ACCLR350NP-N1
4 battery extension modules for 5000VA	75'	4x(133x483x440)	200	(4x)ACCLR350NP-N1

Options

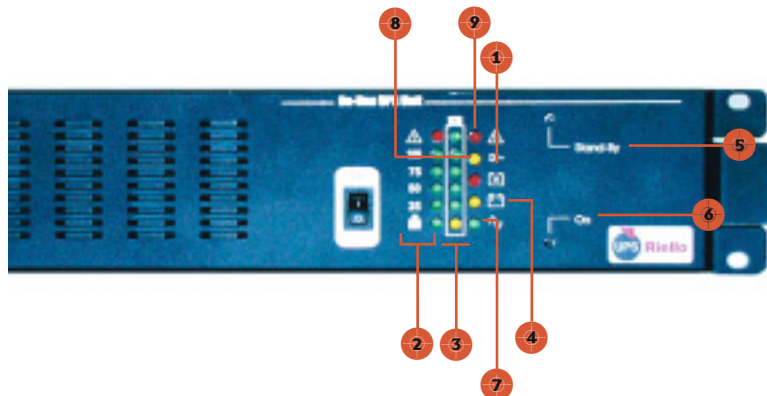
Description	Dimensions (HWD) mm	Weights (Kg)
Dry contacts card DAR 220-500	/	/
EPO DAR 220-500 input	/	/
Manual external bypass 3000VA	190x235x70	2
Module slot SNMP DAR 220-500	/	/
Communication software (full version)	see software section page 66	

DIALOG PLUS RACK

[700 - 3000VA single-phase]



The **DIALOG PLUS RACK** series comprises the 700-1000-1500-2000-3000VA models with double on-line conversion technology (VFI). The load is always powered by the inverter which provides a sinusoidal output voltage, with filtered and stabilized voltage, waveform and frequency. The input and output filters also considerably increase the immunity of the load to mains supply disturbances and to surges. The UPS can power the load for long periods (using the optional battery modules) or long enough to permit shut-down of the computer systems by the **PowerShield²** software which is standard for Windows 95, 98, 2000, Me, NT 4.0 operating systems. For technology and performance, **DIALOG PLUS RACK** is the best solution for the supply of sensitive and vital "mission-critical" equipment.



APPLICATIONS

- Local Area Networks (LAN)
- Servers
- Data centers
- Industrial PLCs
- cash registers
- Emergency devices (lights/alarms)
- Telecommunications devices

CHARACTERISTICS

- reliable, stabilized, filtered voltage (double on-line conversion technology (VFI according to EN50091-3 specifications) with filters for the suppression of atmospheric disturbances)
- high level immunity to surges (6kV according to IEC801-5)
- autorestart at power-up (programmable)
- power factor correction of the load (input power factor of the UPS, close to 1)
- low consumption ("Auto Power Off" function for automatic shut-down of the UPS under no-load conditions)
- simplified maintenance (manual bypass available on rack module)
- high level reliability of the batteries (automatic battery test)
- high level reliability of the UPS (full microprocessor control)
- low impact on the mains supply (sinusoidal absorption)

ADVANCED COMMUNICATION

- advanced, multi-platform communication for all operating systems and network environments: **PowerShield²** supervision and shut-down software included, with SNMP agent, for Windows 95, 98, 2000, Me, NT 4.0, Novell operating systems. The UPS is equipped with a cable for direct connection to the PC (Plug and Play)
- RS232 serial port

2-YEAR WARRANTY

- 1 Battery efficiency
- 2 Load applied
- 3 Input voltage / Battery charge
- 4 Back-up
- 5 Stand-by
- 6 UPS ON
- 7 UPS on inverter
- 8 Mains present
- 9 General alarm

MODELS

POWER

INPUT

DLPR70	DLPR100	DLPR150	DLPR200	DLPR300
700VA/450W	1000VA/700W	1500VA/1050W	2000VA/1400W	3000VA/2100W

Rated voltage			220-230-240 VAC		
Voltage range for non intervention of the battery			170-276		
Rated frequency			50 - 60 Hz ±5 Hz		
Frequency			50 Hz		
Maximum current	3.5 A	5 A	7.4 A	10 A	14.4 A
Rated current	2.5 A	3.5 A	5.2 A	6.8 A	10.2 A
Power factor	≥0.93	≥ 0.93	≥ 0.99	≥ 0.99	≥ 0.99
BY PASS					
Voltage range for switching			180-264 Vac		
Frequency range for switching			selected frequency ± 5 Hz		
BATTERY					
Transfer time (mains power failure)			nil		
Recharge time	5 - 7 h	5 - 7 h	5 - 7 h	4 - 6 h	5 - 7 h
OUTPUT					
Rated voltage	230 Vac ± 1.5%	230 Vac ± 1.5%	220 or 230 or 240 Vac selectable ± 1.5%		
Waveform	sinewave				
Voltage distortion	< 2%				
Frequency	50 or 60 Hz with autom.	50 or 60 Hz with autom.	50 or 60 Hz selection	50 or 60 Hz selectable	50 or 60 Hz selectable
Crest factor of the current	3 : 1				
Rated power in VA	700	1000	1500	2000	3000
Rated power in W	450	700	1050	1400	2100
OTHER DATA					
AC/AC efficiency	89 %	89 %	89 %	90 %	90 %
Operating temperature	0 - 40 °C				
Humidity	< 90 % non condensing				
Protection	Low battery – overcurrent - short-circuit overvoltage – undervoltage - temperature				
Safety compliance	EN 50091 - 1 - 1 and Directive 73 / 23 / EEC				
EMC conformance	EN 50091 - 2 cl. B and Directive 89 / 336 EEC				
Surge capability	IEC 801-5 6KV 1.2/50usec; 3KA 8/20usec				
Color	dark gray RAL 5004				
Noise	< 40 dBA at 1 m				

Description	Power	Back-up (min)	Dimensions (HWD) mm	Weights (Kg)	Code
Dialog Plus Rack DLPR70	700VA/450W	8	89x483x390	7	URC10705XXRU
Dialog Plus Rack DLPR100	1000VA/700W	10	89x483x390	10	URC1R1006XXRU
Dialog Plus Rack DLPR150	1500VA/1050W	11	178x483x490	24	UX1R1506XXRU
Dialog Plus Rack DLPR200	2000VA/1400W	11	222x483x490	27	UX1R2006XXRU
Dialog Plus Rack DLPR300	3000VA/2100W	13	178x483x550	43	UX2R3008XXRU

UPS MODEL	Back-up	Dimensions (HWD) mm	Weights (Kg)	Type	Code Battery Module to be combined with that of the UPS with standard back-up)
DLPR100	30	89x483x375	15	BBR 36-14	ACCRC110RU-01
DLPR150	22	133x483x550	18	BBR 60-7	ACCH1R15RU-07
DLPR150	35	178x483x430	30	BCR 60-12*	ACCH1R15RU-01
DLPR150	55	178x483x430	57	BCR 60-24*	ACCH1R15RU-02
DLPR200	25	178x483x430	35	BCR 72-12*	ACCK1R20RU-01
DLPR300	26	178x483x430	40	BBR 120-7	ACCH2R30RU-05
DLPR300	35	178x483x430	52	BCR 120-12*	ACCH2R30RU-01

* Includes auxiliary battery charger for faster recharging

Description	Dimensions (HWD) mm	Weight (Kg)	Code
External manual by-pass	89x483x380	2	ACCBYPXXNP-01
Communications software (full version)	see software pag. 64 (PowerShield² standard version included)		

Technical data

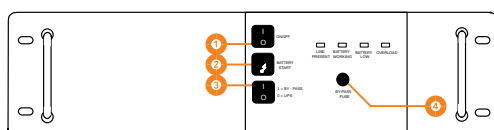
Table Codes weights, dimensions

Back-up extension modules

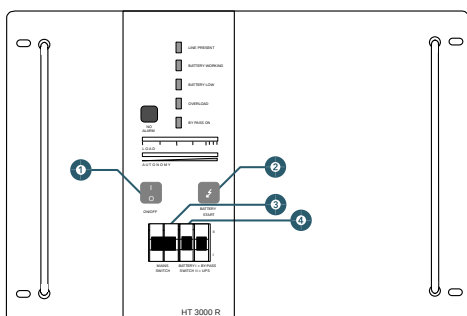
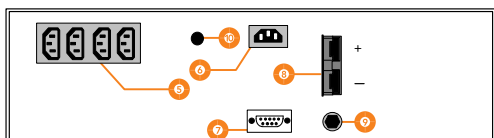
Options

DIAL INVERTER

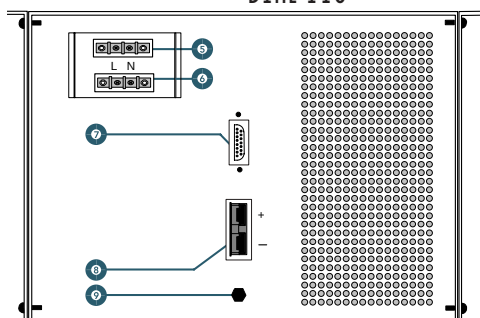
[300 - 3000 VA]



DIAL 24 - DIAL 48



DIAL 110



DIAL 24 - DIAL 48

- 1 ON-OFF
- 2 Start from battery
- 3 Bypass switch
- 4 Bypass fuse
- 5 Outlets
- 6 Inlet
- 7 Signal connector
- 8 Input dc voltage
- 9 Ground outlet
- 10 Battery fuse

The DIAL INVERTER is available for various power ratings, from 300VA up to 3000VA, dc voltage input at 24/48 or 110Vdc and ac single-phase output (230V). DIAL INVERTER can be installed in 19" rack-mount cabinets for integration in any computer, telephone (exchanges) or industrial (process control) applications

APPLICATIONS

- telephone exchanges
- ventilation systems
- telecommunications
- automation
- control circuits for industrial systems

CHARACTERISTICS

- Input 24, 48 or 110Vdc
- high quality voltage: output 230Vac sinewave
- massima protezione del carico tramite l'Isolamento isolation and input and output anti-disturbance filters
- simple maintenance using manual bypass switch
- protection against short-circuit and overload in output
- limiting of inrush current at start-up

COMMUNICATION

- zero-potential contact interface for remote signaling

DIAL 110

- 1 ON-OFF
- 2 Start from battery
- 3 Battery isolator
- 4 Bypass switch (option)
- 5 Output connector (or input for manual bypass)
- 6 Output connector
- 7 Signal connector
- 8 Input dc voltage
- 9 Ground outlet

Leds: - Stand by

- inverter on
- batteries almost discharged
- overload
- battery charge
- bypass on

MODELS	DiAl24-03	DiAl24-05	DiAl24-10	DiAl48-05	DiAl 48-10
Rated power (VA)	300	500	1000	500	1000
Rated power (W)	240	400	800	400	800
INPUT					
Rated voltage (Vdc)	24	24	24	48	48
Operating voltage (Vdc)	20 - 30	20 - 30	20 - 30	40 - 58	40 - 58
Maximum current (A)	15	25	50	12	24
OUTPUT					
Voltage (V)	230 +/-2%	230 +/-2%	230 +/-2%	230 +/-2%	230 +/-2%
Frequency (Hz)	50 +/-0,01%	50 +/-0,01%	50 +/-0,01%	50 +/-0,01%	50 +/-0,01%
Waveform	Sinewave	Sinewave	Sinewave	Sinewave	Sinewave
Harmonic distortion	2%	2%	2%	2%	2%
PROTECTION					
Overheating	Yes	Yes	Yes	Yes	Yes
Short-circuit	Yes	Yes	Yes	Yes	Yes
Current inrush at power-on	Yes	Yes	Yes	Yes	Yes
OTHER DATA					
Containers	19" Rack 3U	19" Rack 3U	19" Rack 3U	19" Rack 3U	19" Rack 3U
Color	dark gray RAL 5004				
Depth (mm)	420				

MODELS	DiAl48-20	DiAl110-10	DiAl110-20	DiAl110-30
Rated power (VA)	2000	1000	2000	3000
Rated power (W)	1600	800	1600	2400
INPUT				
Rated voltage (Vdc)	48	110	110	110
Operating voltage (Vdc)	40 - 58	92 - 140	92 - 140	92 - 140
Maximum current (A)	53	11	22	33
OUTPUT				
Voltage (V)	230 +/-2%	230 +/-2%	230 +/-2%	230 +/-2%
Frequency (Hz)	50 +/-0,01%	50 +/-0,01%	50 +/-0,01%	50 +/-0,01%
Waveform	Sinewave	Sinewave	Sinewave	Sinewave
Harmonic distortion	2%	2%	2%	2%
PROTECTION				
Overheating	Yes	Yes	Yes	Yes
Short-circuit	Yes	Yes	Yes	Yes
Current inrush at power-on	Yes	Yes	Yes	Yes
OTHER DATA				
Containers	19" Rack"	5U 19" Rack 7U	19" Rack 7U	19" Rack 7U
Color	dark gray RAL 5004			
Depth (mm)	490	460	460	460

Description	Power	Dimensions (HWD) mm	Weights (kg)	Code
DiAl 24-03	300VA/240W	133x483x420	18	IINV02430035RUA
DiAl 24-05	500VA/400W	133x483x420	20	IINV02450035RUA
DiAl 24-10	1000VA/800W	133x483x420	25	IINV0241K035RUA
DiAl 48-05	500VA/400W	133x483x420	20	IINV04850035RUA
DiAl 48-10	1000VA/800W	133x483x420	25	IINV0481K035RUA
DiAl 48-20	2000VA/1600W	222x483x490	30	IINV0482K035RUA
DiAl 110-10	1000VA/800W	311x483x460	35	IINV1101K035RUA
DiAl 110-20	2000VA/1600W	311x483x460	40	IINV1102K035RUA
DiAl 110-30	3000VA/2400W	311x483x460	45	IINV1103K035RUA
Automatic bypass	1000VA	add "-01" to the code of the inverter		
Automatic bypass	3000VA	add "-01" to the code of the inverter		



MULTI-SWITCH

[100 % RELIABILITY]



The **MULTI SWITCH** promotes a high level continuous service on the installation. Its principle of operation guarantees a higher level of reliability than that of a single UPS, with bypass, or of an installation with several UPS in parallel.

PRINCIPLE OF OPERATION

The **MULTI-SWITCH** permits distribution and remote management of eight network users in a system with one or two direct or UPS-connected power lines. The Multi-Switch is able to connect each of the eight users (each with a maximum power absorption of 3A) to either of the two power lines (A and B) while also monitoring power absorption at the same time.

PROTECTION AGAINST POWER SUPPLY FAILURES

If one of the two power sources is not within range, the **MULTI SWITCH** will switch the other users to the second source (switching is instantaneous even if the two sources are in phase).

PROTECTION AGAINST FAULTS WITH THE LOAD

In the case of a fault with one of the loads (for example due to a short-circuit or overload), the **MULTI SWITCH** will disconnect the load so that this does not disturb operation of the other loads (for example in the case of bad selectivity of the protection). **MULTI-SWITCH** protects sensitive installations from both power and equipment faults!

APPLICATIONS

- e.business
- Data centers
- ISP/ASP
- Local Area Networks (LAN)
- Server Farms
- Servers

CHARACTERISTICS

- Full protection of equipment against power failures and faults with the load
- Versatility of use: possibility of powering the **MULTI SWITCH** with 2 different power sources (2 UPS even of different size and type).
- Wired in 19" cabinet
- LCD display for monitoring of measurements/alarms/states
- Possibility of connection to a supervision center on a serial interface
- No signal connection is required between the multi switch and the power sources or the equipment



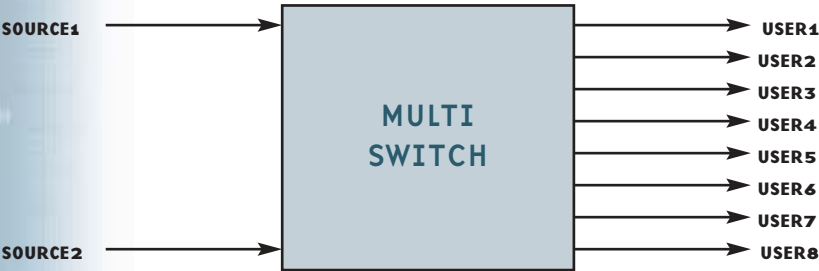
TECHNICAL DATA

MULTI-SWITCH (2 inputs - 8 output)

Input voltage	180-276 Vac single-phase, 50/60Hz
Maximum load for each output (A)	3
Maximum load for each input (A)	10
Output voltage	selection of one of the two input sources
Operating conditions:	
maximum elevation	3000mt
maximum humidity (non condensing)	0-90%
operating temperature	0-40°C
storage conditions	maximum elevation 15,000m/0-45°C
maximum noise level	<35dB(A)
Communication interface	serial on DB9 connector
Enclosure protection rating	IP20
Inlets	2 IEC 320 (10A) C14
Outlets	8 IEC 320 (3A each)
Rack dimensions	1U-19"
Weight (Kg):	5
Laws and standards	CE marking/EN50091-1-1 (safety)/EN50091-2 (EMC) level A/ CEI 74-2/IEC 60950
Color	dark gray RAL 5004
Protection	overcurrent – overvoltage – undervoltage

Technical data

PRINCIPLE OF OPERATION



Description	Power	Dimensions (HxL) mm	Weights (Kg)	Code
MULTI SWITCH	8 outlets 3A	1Ux19"	5	MMSR208M003RU

Table Codes weights, dimensions

Options

Software
See Software section page 66



MULTI SHELTER CABINETS*



A full range of solutions for structured cabling of rack-mount modules (UPS, MULTI-SWITCH, HUBS, SERVERS, etc.). The **MULTI SHELTER** range is available in various dimensions and with a wide selection of options, for adaptation to the installation environment, and which allow communication between the MULTI SHELTER and a supervision computer system. These are not just cabinets but real communicating units that can be integrated seamlessly in a BMS (Building Management System or "wired building").

APPLICATIONS

MULTI SHELTER is suitable for all applications that require a system for housing 19" rack drawers:

- Servers
- Routers
- Hubs
- UPS
- MULTI-SWITCH
- PLCs for industrial control
- Telephone systems

CHARACTERISTICS

- Easy to assemble
- Universal solution
- Flexibility:
 - reversible door opening to the right or left
 - possibility of choosing cable infeed position (from bottom, to the side)
- Wide range of solutions, with variable depth, height and width

ACCESSORIES:

Electrical accessories

- Multi-outlet device
- Distribution panel
- Concentrator rack

Sensors

- Temperature sensor
- Vibration sensor
- Smoke sensor
- Anti-intrusion sensor
- Humidity sensor



TECHNICAL DATA:

Colour: dark gray RAL 5004 / light gray RAL 7035

Floor standing cabinets

Dimensions (WD) mm	Units	Standard	Code	
			light gray RAL 7035	dark gray RAL 5004
600x600	22	19"	UM-MKS-2266/A	UM-MKS-2266/N
600x600	27	19"	UM-MKS-2766/A	UM-MKS-2766/N
600x600	33	19"	UM-MKS-3366/A	UM-MKS-3366/N
600x600	38	19"	UM-MKS-3866/A	UM-MKS-3866/N
600x800	38	19"	UM-MKS-3868/A	UM-MKS-3868/N
800x800	38	19"	UM-MKS-3888/A	UM-MKS-3888/N
600x600	42	19"	UM-MKS-4266/A	UM-MKS-4266/N
600x800	42	19"	UM-MKS-4268/A	UM-MKS-4268/N
800x600	42	19"	UM-MKS-4286/A	UM-MKS-4286/N
800x800	42	19"	UM-MKS-4288/A	UM-MKS-4288/N

COMMON FEATURES:

- Front door: glass with key
- Rear panel: closed
- Side panels
- Socket: 10 mm
- Kit 4 setable feet

Wall-mount cabinets

Description	Dimensions (WD) mm	Code	
		light gray RAL 7035	dark gray RAL 5004
Rack 19" wall mounting 6U	600x280	MKS-0662/A	MKS-0662/N
Rack 19" wall mounting 6U	600x350	MKS-0663/A	MKS-0663/N
Rack 19" wall mounting 9U	600x350	MKS-0963/A	MKS-0963/N
Rack 19" wall mounting 15U	600x500	MKS-1565/A	MKS-1565/N

Accessories

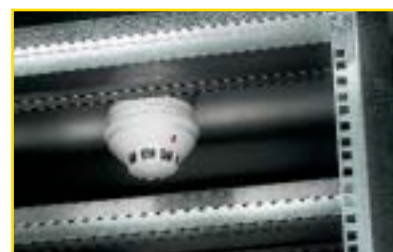
Description	Code	
	light gray RAL 7035	dark gray RAL 5004
Module 6 plugs	MKS-AM36/A	MKS-AM36/N
Module 6 differential switches	MKS-AM6-D/A	MKS-AM6-D/N
Module 6 magnetic-thermal protections	MKS-AM6-M/A	MKS-AM6-M/N
Module 6 power switches	MKS-AM6-S/A	MKS-AM6-S/N
Temperature sensor	MKS-ST	MKS-ST
Smoke sensor	MKS-SF	MKS-SF
Humidity sensor	MKS-SU	MKS-SU
Vibration sensor	MKS-SV	MKS-SV
SNMP agent for management (Rack concentrator)	MPU-Rack	MPU-Rack
Other accessories	see price list	



Vibration sensor



Rack concentrator
(for communication of the signals
from the sensors to the computer
network)



Smoke sensor

★ MULTI SHELTER is compatible with all RIELLO UPS solutions of the NET-TEL range (DIALOG ACTIVE RACK, DIALOG PLUS RACK, DiAl inverter, MULTI SWITCH).

For configuration of the rack system (cabinet + accessories), please consult the retailer or visit our web site.

RANGE **DIALOG SEC** [SECURITY]

[FOR EMERGENCIES, ALARMS,
ELECTRO-MEDICAL EQUIPMENT]



SECURITY

This sector includes the following applications:

- Emergency lights
- Alarms
- Electromedical devices

The systems used for these applications have many similarities. In many cases, they must have the following characteristics either because they are indispensable (just think of the enormous importance of a continuous power supply for electro-medical devices) or are required by law (there is a specific standard for the electro-medical sector — CEI 64-8 V2 — and also a number of guidelines and standards — EN 50171 — for emergency lights and devices):

- Long back-up (60/90')
- Very short recharge time
- Input/output galvanic isolation
- High level diagnostics (display of a large amount of information on the control panel of the appliance)
- Interface device for remotization of the information (normally using dry relay contacts)
- Very high short-circuit current (required in particular for emergency lighting)



These applications require a back-up system configured as follows:

- standard UPS with high capacity battery charger
- isolation transformer (where required)
- possibility of communication with remote peripherals

the following ranges assure technological and regulatory compliance with these applications:

DIALOG PLUS (page 18)

POWER DIALOG PLUS (page 22)

MULTI DIALOG (page 26)

MASTER DIALOG (page 32)



RANGE **DIALOG e-BUSINESS**

[For Internet applications]

e-BUSINESS

As for security, e.Business is characterized by particular power supply requirements; e.Business comprises the electronic devices dedicated to communication on the Internet .

Data centers, medium/large Internet Providers (ASP and ISP), Server Farms or hubs for intercontinental Internet communication (Point Of Presence - POP).

These are the many applications that always require continuous power supply with the following characteristics:

- a highly reliable power supply (the Internet must continue to operate round the clock 365 days a year without any interruptions due to power problems)
- a "modular" power supply able to keep pace with the "growth" of network equipment. All Internet-dedicated computer applications continue to expand both as regards size (new servers are added to those already existing) and power (just think of how information technology requires continuous updates as the market is flooded with more and more powerful software products)



These applications require a back-up power supply that can be paralleled, that is able to guarantee continuous power even if a fault occurs in one of the UPS (parallel redundant) or which permits connection in parallel with similar systems even some time after the first UPS has been installed in order to increase system power (power parallel).

The ranges available

MULTI DIALOG (page 26)

MASTER DIALOG (page 32)

DIALOG POWER CENTRE2 (page 42)

permit redundant or power modular parallel distribution

The RACK product range is also important for e-business applications, in particular:

MULTI SHELTER cabinets (page 54)

MULTI SWITCH (page 52)

DIALOG PLUS RACK (page 48)

DIALOG ACTIVE RACK (page 44)



STABILIZERS RANGE

WHY USE STABILIZERS?

Fluctuations (up to 25%) may occur in the amplitude and form of the voltage mainly due to:

- switching on of high power equipment
- starting of critical equipment (motors, lifts, lighting devices)
- short-circuit on secondary equipment and other situations that occur daily on the public mains supply.

These phenomena are further amplified if the power is supplied by independent power systems (generators).

These fluctuations may cause serious problems (that are often not obvious) for electrical equipment. Powering a bulb at 10% above its rated value reduces the life of the bulb by half whereas if it is powered 30% below the same value, it loses 30% of its brightness.

The more complex the equipment, the greater the damage:

- a computer may be damaged or make calculation errors
- a laboratory appliance may make measurement errors
- an industrial control may drive the process incorrectly

Stabilizers are the solution to voltage fluctuations.

There are various types of stabilization devices:

1. Dynamic stabilizers
2. Static stabilizers
3. Stabilizers combined with UPS

1. DYNAMIC STABILIZERS

Maintain voltage stability using a dynamic device (variable with brushes) that adds or subtracts voltage to/from the input network compensating for any deformations or fluctuations

Advantages:

- reduced weight and dimensions
- reduced cost

- reduced maintenance
- availability of a wide power range
- high level efficiency
- high level compensation capacity (also for very variable input network (+/-25%))

They are normally used for less sensitive, high power loads (processes, lights) with high absorption at start-up (motors, air conditioners, compressors, pumps).

There are two versions of dynamic stabilizers:

- a version able to power unbalanced three-phase loads or with a maximum imbalance between the phases of 50%
- a version able to power even up to 100% unbalanced three-phase loads and to guarantee high level precision both with unbalanced loads and asymmetrical voltages.

2. STATIC STABILIZERS

Maintain voltage stability using an electronically-controlled static device (transistor) which acts on the secondary of a transformer, responding quickly and correcting the voltage fluctuations.

Advantages:

- high quality voltage
- improved protection of the load against electromagnetic disturbances

They are normally used for sensitive loads (information technology, Industrial PLCs, etc.)

3. STABILIZERS COMBINED WITH UPS

Stabilizers can be used together with UPS, in particular to stabilize the back-up network and to obtain a stabilized voltage even when the UPS powers the load with the back-up network through the bypass circuit (for example, in case of an overload).

STATIC STABILIZERS

STABILOG-EL1 RANGE



APPLICATIONS

- information technology
- control electronics (Industrial PLCs)

CHARACTERISTICS

- extremely high reliability (electronic control)
- high level quality of the voltage (+/-3% with response speed to fluctuations of 2 ms/V)
- high level stability of the voltage: insensitive to load, frequency, power factor variations
- low consumption (efficiency=98%)
- extra high protection of the load (EMI/RFI filters for protection of the load against conducted radio-disturbances; overcurrent protection)
- low impact on the mains supply: induced harmonic distortion <0.2%
- maximum flexibility: possibility of connecting 3 single-phase stabilizers to power even an unbalanced three-phase load (independent phase regulation)

MODELS	EL05	EL10	EL20	EL40
Rated input voltage	c.a. single-phase 230Volt 48/52Hz			
Input Voltage range	from 188 to 262 Volts (+14/-18%)			
Output voltage	a.c. single-phase 230V +/- 3% (independent of the load)			
Rated power	500VA	1000VA	2000VA	4000VA
Rated current	2.2A	4.3A	8.7A	17.4A
Regulation speed	2 ms/Volt			
Possible variation of the load	From 0 to 100%			
Power factor of the load	Any			
Harmonic distortion introduced	<0,5%			
Efficiency	98%			
Operating temperature	-10/+40°C			
Indications	Mains supply present/absent in input			
Equipment	Switch, fuse	Switch, fuse	Switch fuse	Switch fuse
Connections	1 Shuko outlet, cord	1 Shuko outlet, cord	Two Shuko outlets, terminal block	Two Shuko outlets, terminal block

Technical data

Description	Power	Weights (kg)	Dimensions (HWD) mm	Code
STABILOG EL05	500VA	7.7	204x164x187	S2TM0K5C030RU
STABILOG EL10	1000VA	8.3	204x164x187	S2TM001C030RU
STABILOG EL20	2000VA	19.5	280x226x347	S2TM002C030RU
STABILOG EL40	4000VA	25.6	280x226x347	S2TM004C030RU

Table Codes weights, dimensions

STABILOG RANGE

STABILOG RANGE-EM1 SINGLE-PHASE

STABILOG RANGE-EMT3 THREE-PHASE

[for 50%-balanced three-phase or single-phase loads]

STABILOG RANGE-EMY3 THREE-PHASE

[for unbalanced three-phase loads or three-phase asymmetrical voltages]



APPLICATIONS

- industrial processes
- lighting
- equipment with high start-up absorption (motors, conditioners, compressors, pumps)

CHARACTERISTICS

- low impact on the mains supply: no distortion or own disturbances (induced distortion $< 0.2\%$), very low series impedance (from 0.52 to 0.0015 ohm)
- low consumption: (efficiency up to 98%)
- voltage quality (regulation and stabilization made on the effective value of the voltage and therefore unaffected by harmonic distortions of the mains supply)
- easy to install: close to the equipment, inside this
- flexibility: assured by the wide range of options available
- very precise stabilization ($\pm 1\%$)
- high level reliability (natural cooling guarantees a very high MTBF)
- very high overload (up to 10 times the rated power)

Diagram STABILOG EM1

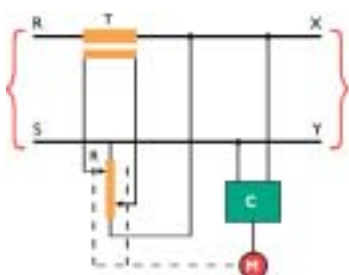


Diagram STABILOG EMT3

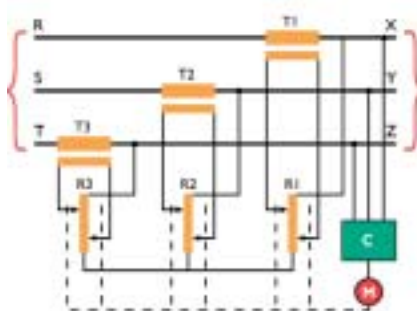


Diagram STABILOG EMY3



MODELS	EM110	EM125	EM150	EM170	EM1150 EM1100	EM1300
Power (kVA)	1	2, 5/2	5/4	7/6	15/10	30
Input/output voltage(V)	230V	230V	230V	230V	230V	230V
Input voltage range (+/-%)	25	15/20	15/20	15/20	15/20	15
Input frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Regulation speed (ms/Volt)	18	28/20	32/25	33/25	33/25	58
Precision +/- %	1.5	1.5	1.5	1.5	1.5	1
Equipment		Range selector	Range selector	Range selector	• Discharger setting • Voltmeter • Indicator light • Clean-contact interface	
Power factor of the load	any	any	any	any	any	any
Possible variation in the load	0-100%	0-100%	0-100%	0-100%	0-100%	0-100%
Rated output current	4.3A	10.9A	21.7A	30.4A	65.2A	130.4A
Efficiency	94%	96%	97%	98%	98%	98%
Harmonic distortion introduced	<0,2%	<0,2%	<0,2%	<0,2%	<0,2%	<0,2%
Protection rating	IP20	IP20	IP20	IP20	IP20	IP21
Operating temperature	-5/+40°C	-5/+40°C	-5/+40°C	-5/+40°C	-5/+40°C	-5/+40°C
Cooling	Natural	Natural	Natural	Natural	Natural	Natural

Technical data

Description	Power	Weights (Kg)	Dimensions (HWD) mm	Code
STABILOG EM110	1kVA	18	200x210x385	S1TM001U050RU
STABILOG EM125	2.5/2kVA	19	200x210x385	S1TM002U040RU
STABILOG EM150	5/4kVA	28	240x235x410	S1TM005U030RU
STABILOG EM170	7/6kVA	38	265x275x425	S1TM007U040RU
STABILOG EM1100	10kVA	54	285x290x505	S1TM010U040RU
STABILOG EM1150	15kVA	54	285x290x505	S1TM015U030RU
STABILOG EM1300	30kVA	110	952x483x337	S1TM030U030RU

Table Codes
weights, dimensions

DYNAMIC STABILIZERS

MODELS	EMT350	EMT3100	EMT3200 EMT3150	EMT3350 EMT3250	EMT3750 EMT3500
Power (kVA)	8/5/4/3	15/10/8/5	20/15	35/25	75/50
Input voltage range (+/-%)	10/15/20/25	10/15/20/25	15/20	15/20	15/20
Regulation speed (ms/Volt)	25/20/16/12	27/20/15/10	20/15	33/25	18/13
Precision +/-%	1	1	1	1	1
Equipment	Range selector switch	Range selector switch	Discharger Settings Voltmeter Indicator light clean-contact int.	Discharger Settings Voltmeter Indicator light clean-contact int.	Discharger Settings Voltmeter Indicator light clean-contact int.
Rated output current	11.6A	21.7A	29A	50.7A	109A
Efficiency (%)	98	98	98	98	98
Protection rating	IP20	IP20	IP21	IP21	IP21

MODELS	EMT3500P	EMT3750P	EMT31000	EMT31500
Power (kVA)	50	75	100	150
Input voltage range (+/-%)	25	20	15	15
Regulation speed (ms/Volt)	11	13	18	33
Precision +/-%	1	1	1	1
Equipment	Discharger Settings Voltmeter Indicator light clean-contact int.	Discharger Settings Voltmeter Indicator light clean-contact int.	Discharger Settings Voltmeter Indicator light clean-contact int.	Discharger Settings Voltmeter Indicator light clean-contact int.
Rated output current	72.5A	109A	145A	217A
Efficiency (%)	98	98	98	98
Protection rating	IP21	IP21	IP21	IP21

Technical data

Common characteristics of the range

Input voltage/output (V)	400V
Input frequency	50/60Hz
Power factor of the load	qualsiasi
Possible variation of the load	0-100%
Harmonic distortion introduced	<0,2%
Operating temperature	-5/+40°C

Description	Power	Weights (Kg)	Dimensions (HWD) mm	Code
STABILOG EMT350	8/5/4/3kVA	45	260x600x300	S1TT008U020RU
STABILOG EMT3100	15/10/8/5kVA	66	480x270x445	S1TT015U020RU
STABILOG EMT3150	15kVA	122	952x483x337	S1TT015U040RU
STABILOG EMT3200	20kVA	122	952x483x337	S1TT020U030RU
STABILOG EMT3250	25kVA	247	1492x587x337	S1TT025U040RU
STABILOG EMT3350	35kVA	247	1492x587x337	S1TT035U030RU
STABILOG EMT3500	50kVA	269	1492x650x395	S1TT050U040RU
STABILOG EMT3750	75kVA	269	1492x650x395	S1TT075U030RU
STABILOG EMT3500P	50kVA	380	1492x650x395	S1TT050U050RU
STABILOG EMT3750P	75kVA	380	1492x650x395	S1TT075U040RU
STABILOG EMT31000	100kVA	380	1600x650x600	S1TT100U030RU
STABILOG EMT31500	150kVA	460	1600x650x600	S1TT150U030RU

Table Codes
weights, dimensions

MODELS	EMY370	EMY3150 EMY3120	EMY3210 EMY3180	EMY3450 EMY3300
Power (kVA)	7/6	15/12	21/18	45/30
Input voltage range (+/-%)	15/20	15/20	15/20	15/20
Regulation speed (ms/Volt)	12/10	19/15	19/15	19/15
Precision +/-%	1	1	1	1
Equipment	Discharger Settings Voltmeter Indicator light	Discharger Settings Voltmeter Indicator light	Discharger Settings Voltmeter Indicator light	Discharger Settings Voltmeter Indicator light
Rated output current	10A	21.7A	30.4A	65.2A
Efficiency (%)	98	98	98	98
Protection rating	21	21	21	21

MODELS	EMY3600	EMY3900	EMY31000	EMY31500
Power (kVA)	60	90	100	150
Input voltage range (+/-%)	20	15	20	15
Regulation speed (ms/Volt)	24	33	13	17
Precision +/-%	1	1	1	1
Equipment	Discharger Settings Voltmeter Indicator light clean-contact int.	Discharger Settings Voltmeter Indicator light clean-contact int.	Discharger Settings Voltmeter Indicator light clean-contact int.	Discharger Settings Voltmeter Indicator light clean-contact int.
Rated output current	87A	130A	145A	217A
Efficiency (%)	98	98	98	98
Protection rating	21	21	21	21

Common characteristics of the range

Input voltage/output (V)	400V
Input frequency	50/60Hz
Power factor of the load	Qualsiasi
Possible variation of the load	0-100%
Harmonic distortion introduced	<0,2%
Operating temperature	-5/+40°C

Description	Power	Weights (Kg)	Dimensions (HWD) mm	Code
STABILOG EMY370	7/6kVA	115	1105x535x410	S1TY007U030RU
STABILOG EMY3120	12kVA	117	1105x535x410	S1TY012U040RU
STABILOG EMY3150	15kVA	117	1105x535x410	S1TY015U030RU
STABILOG EMY3180	18kVA	144	1105x535x410	S1TY018U040RU
STABILOG EMY3210	21kVA	144	1105x535x410	S1TY021U030RU
STABILOG EMY3300	30kVA	192	1105x535x410	S1TY030U040RU
STABILOG EMY3450	45kVA	192	1105x535x410	S1TY045U030RU
STABILOG EMY3600	60kVA	350	1600x650x600	S1TY060U040RU
STABILOG EMY3900	90kVA	350	1600x650x600	S1TY090U030RU
STABILOG EMY31000	100kVA	550	1600x1100x600	S1TY100U040RU
STABILOG EMY31500	150kVA	550	1600x1100x600	S1TY150U030RU

Table Codes
weights, dimensions

POWERSHIELD²

[full version: for all operating systems]



Powershield² promotes efficient, user-friendly management of the UPS through display of bar charts containing all the major information such as input voltage, load applied, capacity of the batteries etc..

It is able to provide detailed information in cases of faults and also about the characteristics of the UPS connected. It has been developed with a client/server architecture that makes it flexible and easy to use, with multi-language support and on-line help.



All the trademarks indicated are the property of their respective owners

MAIN CHARACTERISTICS

- 1) sequential and priority-based shutdown:
Powershield² permits unattended shut-down of all the PCs of the network, saving any active work and the most widely used applications. Users can define their own shutdown procedures also establishing the order in which critical computers (such as servers) are to be shut down.
- 2) Multi-platform compatibility :
Powershield² assures standard management and monitoring capabilities using the TCP/IP communication protocol. This makes it possible to monitor computers with different operating systems from a single console, for example monitoring a UNIX server from a PC with Windows 98 and also connecting to UPS located in different geographical areas using dedicated networks (intranets) or the Internet.
- 3) Event scheduling:
With **Powershield²**, users can program their own procedures to shutdown, power-off and power-up their powered systems, considerably increasing system safety and, equally important, power economy.
- 4) Messages management:
Powershield² keeps users constantly informed of the status of the UPS both locally and also by sending messages to network users. It is also possible to define a mailing list of users who will receive e-mail messages, faxes and SMS in the case of faults or sudden blackouts.
- 5) Integrated SNMP agent:
Powershield² features an integrated SNMP agent for management of the UPS via SNMP. This agent is able to send all the information about the UPS and to generate traps using the RFC 1628 MIB standard. This makes it possible to manage the UPS in compatible SNMP management stations such as HP Open View, Novell Managewise and IBM NetView.

OPERATING SYSTEMS SUPPORTED (version POWERSHIELD² FULL)

- Windows 95, 98, Me, NT 4.0 and 2000, XP.
- Novell Network 3.x, 4.x, 5.x, IntraNetWare
- IBM OS/2 Warp and Server,
- Mac OS X, 9.x
- The most widely used UNIX operating systems such as: IBM AIX, HP UNIX, SUN OS SPARC, SUN Solaris INTEL and SPARC, SCO Unix and UnixWare, Siemens SINIX, Silicon Graphic IRIX, Compaq True64 UNIX and DEC UNIX, Linux, BSD UNIX and FreeBSD UNIX

GRAPHIC MONITORING OF UPS STATUS

PowerShield² is a simple but powerful tool for display and control of Riello UPS no-break power systems. There are various graphic versions including Windows, Java OS/2 and MacOS.



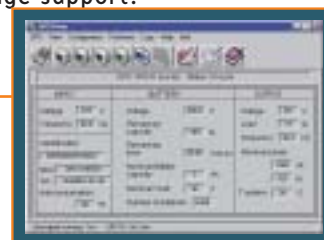
VERSION FOR MacOS



Riello UPS **PowerShield²** software is the only UPS control and shut-down software running under Macintosh with client-server architecture. It permits integration in TCP/IP networks with Windows, Novell, IBM OS/2 and the most widely used UNIX operating systems. It supports the network agents of the NetMan series for network management of UPS. Multi-language support.

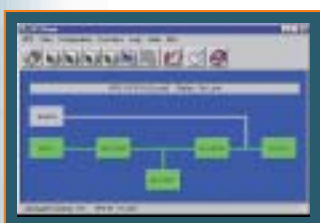
DETAILED DISPLAY WITH ALL THE VALUES OF THE UPS

PowerShield² provides all the information required for first level diagnostics.



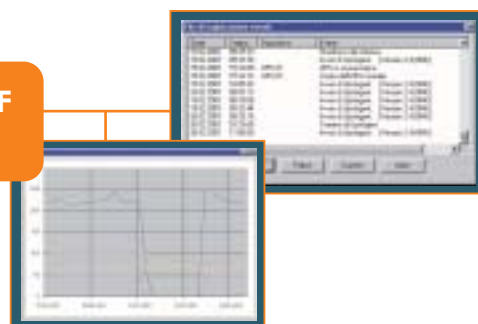
BLOCK AND FUNCTIONING DIAGRAMS OF A UPS

PowerShield² also displays the UPS in block format providing the user with information regarding operating status.



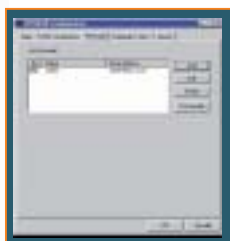
SAVING OF THE EVENTS LOG AND GRAPHIC DISPLAY OF THE MAIN VALUES

All events relating to UPS operating status are logged so that the user can also check the trend of the input voltage, of the load applied to the UPS and battery back-up.



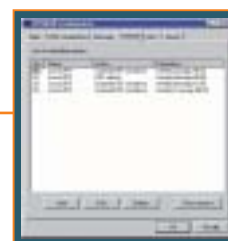
NOTIFICATION OF ALARMS VIA E-MAIL AND SMS

PowerShield² can be configured to forward alarm messages automatically via E-mail or SMS.



PROGRAMMING THE CONTROLS OF THE UPS

All the operations normally carried out by the user can be performed automatically: switching the server off and on again, UPS battery test, etc.



Codes

Description

PowerShield² software full version.

Kit SW080-002

Software KIT for AS/400

The Riello control software for AS/400 systems manages correct shut-down of the OS/400 system in the case of blackout.

Codes

Description	
Interface kit for AS/400 (cable kit)	KITSW058-001
Interface kit for advanced AS/400	KITSW063-001

NETMAN

Riello NetMan network agents are able to monitor and control the UPS via a network. Ideal for UPS integration in medium/large size networks. High level reliability and flexibility for management of multi-server shut-down. Management of UPS information and sending of multi-standard commands:

- SNMP with RFC1628 and proprietary MIB for management with NMS type HP OpenView or CA Unicenter TNG
- HTTP
- TELNET

Compatible with **PowerShield²** software for complete multi-standard flexibility. Supports all the Riello UPS lines.



Codes

Description	
External network agent Ethernet NetMan 101 (box version)	ACCSA1XXRU-01
Network agent with Ethernet NetMan 102 card (slot version) for all models, excluded Dialog Active Rack 2200-5000	ACCSA2XXRU-01
SNMP agent NetMan 102C (for Dialog Active Rack 2200-5000)	MPU-SLOT
External network agent Token ring NetMan 203 (box version)	ACCSA3XXRU-01

USB CONVERTER

Permits connection of the UPS to Macintosh computers or PCs with Windows 98 and 2000.

Codes

Description	
USB Converter	ACCUSBXXRU-01

MULTIPLEXER

Riello multiplexers are multiplexers for communication between UPS and PC, compatible with **PowerShield²** software and controlling several PCs not connected to the same LAN or for reasons of security on PCs used as proxy server. Compatible with all Riello UPS equipment with RS232 serial port.



Codes

Description	
4 serial output Multiplexer for Master Dialog RM RT line	KITSW070-001
5 serial output Multiplexer for all UPS lines excluding Master Dialog RM RT	KITSW071-001
10 serial output Multiplexer for all UPS series excluding Master Dialog RM RT	KITSW072-001



OUR TECHNICAL ASSISTANCE [SERVICES]



UPSERVICE, our Technical Assistance organization, comprises highly specialized technicians able to provide valid, reliable and competent technical support and an efficient after-sales service.

UPSERVICE provides Customers with the following services:

- a **CALL CENTER** with toll-free number for direct contact with the UPSERVICE organization. CALL CENTER personnel are always ready to provide customers with advice regarding the most suitable product for their applications and also to provide consultancy regarding equipment installation and maintenance.
- **FAST & NEW** the new, free and immediate UPS assistance service. The FAST & NEW service is provided for UPS with a maximum power of up to 4000VA and within the **24-month** warranty period.
In the case of faults or failures, UPSERVICE restores a UPS to operation, for which the remaining warranty period will continue. The only charge for the Customer is that of forwarding the correctly packaged faulty UPS.
- **FAST & READY** is a service offered at the customer's site, and is for large-size UPS that cannot be transported, both under warranty or after the end of the warranty period. Fast repairs are also guaranteed by the state-of-the-art technology of the equipment and high level professional standards of the UPSERVICE personnel and in the Authorized Assistance Centers located all over Italy. UPSERVICE guarantees that spare parts will be replaced with only original products that have been tested and updated in order to preserve the original safety, reliability and quality characteristics of the UPS in time.
- on request, UPSERVICE can also carry out **PRODUCT START-UP** providing assistance during initial start-up and also instructing personnel. The Technical Assistance service can also make preliminary surveys to verify suitability of the installation site, analyze possible problems with the site, disconnect or relocate equipment. It is specifically recommended that all UPS with panel type installation be put into service by the technical assistance service.
- UPSERVICE offers Customers the possibility of stipulating **MAINTENANCE CONTRACTS** in order to minimize the risks and costs of UPS faults. The various types of contract comprise formulas that range from a simple periodic inspection up to "total" solutions including repairs, replacement of spare parts and periodic visits.
- the new **TELEGUARD TELEASSISTANCE** service permits round-the-clock remote supervision of equipment. The intelligence of products (digital control) and their ability to communicate via modem means that UPSERVICE can interrogate the UPS under contract periodically and check all their past and present functioning data, sending a report to the customer, fully automatically. The UPS can also call UPSERVICE and report alarms or faults. This means that the user does not have to supervise the equipment and also promotes prompt action on the part of the assistance service according to the maintenance contract.

UPSERVICE organizes regular **TECHNICAL TRAINING COURSES** for technical operators.

For further information about the services, contact:



POWER SUPPLY PROBLEMS

[AND THE SOLUTIONS TO THEM]

1.1 POWER SUPPLY PROBLEMS

Electric energy consists of a single-phase or three-phase waveform characterized by:

- frequency;
- amplitude;
- a form (possible wave distortion);
- symmetry of the system (only for three-phase).

Even if the sinewave may be virtually perfect at the source, this is not the case when it reaches the equipment where various disturbances may be observed such as:

- transient overvoltages;
- ownouts;
- frequency fluctuations;
- interruptions.

These disturbances are usually caused by the transmission and distribution of power supply, weather (storms, frost, wind, etc.) and industrial conditions (machine faults, equipment with polluting current, mains events, etc.). Therefore, despite constant improvements to the distribution network and the quality of the "electricity product", disturbances are still frequent and complete elimination of these would indeed prove costly.

1.2 EFFECTS OF POWER SUPPLY PROBLEMS ON EQUIPMENT

In this sector too, manufacturers have made considerable progress in their efforts to reduce the vulnerability of equipment to disturbances (optimized immunity to overvoltages, tolerance to brownouts of up to 10 or 20% or even of outages lasting from 5 to 10 ms). On the other hand, the increasing complexity of many computer and industrial applications, the use of high performance PLCs and use of the continuous cycle in industrial processes and telecommunications systems means that the consequences of these disturbances are ever more dramatic. They may even involve losses of productivity, deterioration of product quality, serious risks for people and equipment and may even undermine the very existence of a company. Computer systems and, generally, all devices that require a disturbance-free power supply must be suitably protected. The effects in terms of premature aging of equipment and deterioration of reliability and efficiency are less visible and therefore more detrimental.

2.1 UPS's: FOUR GOOD REASONS FOR INSTALLING THEM

1. To provide power in the case of a blackout: this is the classical, although not the most important, function of an UPS.
2. To provide a QUALITY POWER SUPPLY by filtering and stabilizing the power source which may be the mains supply or a generator and may be affected by considerable disturbances.
3. INDEPENDENT MANAGEMENT: with a UPS, the user's worries are over. In a blackout, the UPS will automatically safeguard all programs that are open and, in the case of a fault, can alert service technicians.
4. CONSIDERABLY IMPROVE RELIABILITY of the power system, using redundant solutions that guarantee power quality and continuity even in the case of faults

system, using redundant solutions that guarantee power quality and continuity even in the case of faults

2.1.1 GENERAL CONSIDERATIONS REGARDING OPERATION

UPS's usually consist of three main blocks:

- a rectifier-battery charger to convert ac current into dc current and to charge the battery;
- a set of batteries (usually of the sealed lead-acid type) to store the energy and recover it instantaneously, according to requirements, for periods of 5 to 30 minutes or even longer;
- a static converter (inverter) to convert this dc voltage into an ac voltage with perfectly filtered and stabilized voltage and/or frequency.

These three functions can be integrated with additional capabilities: an automatic bypass for power supply in the case of overloads or UPS faults, a manual bypass that permits complete isolation of the UPS and various local or remote signaling and maintenance options.

2.1.2 CONFIGURATIONS

Many different types of UPS have been developed in response to specific customer requirements for availability and quality of power supply intended for different types of loads, from a few Watts to many Megawatts. The current classification according to performance is indicated in the ENV 50091-3 preliminary specifications which identify three types of UPS:

VFI (Voltage and Frequency Independent): more generally known as ON LINE or DOUBLE CONVERSION where the output of the UPS is independent of any fluctuations in the power voltage (mains) and frequency variations are maintained within the limits prescribed by the ENV 61000-2-2 (CEI 110-10) specifications. This type of UPS can operate as a frequency converter (see fig. A).

VFD (Voltage and Frequency Dependent): more commonly known as OFF LINE where the output of the UPS depends on fluctuations of the power supply (mains) voltage and frequency variations

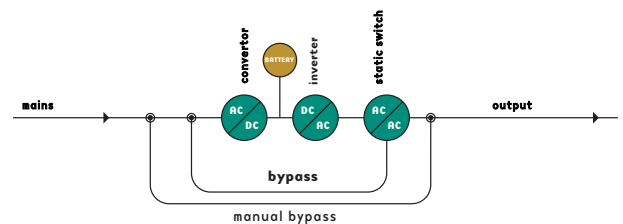


figure A: UPS in VFI configuration

VI (Voltage Independent): usually known as LINE INTERACTIVE where voltage fluctuations are stabilized with normal operating limits by passive/electronic regulation devices (see fig. B).

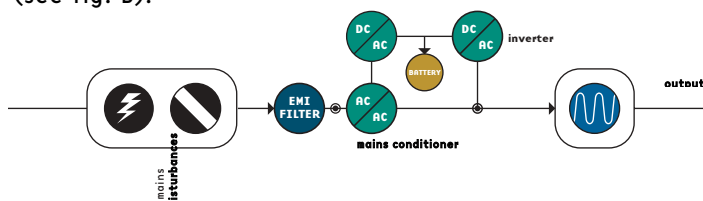


figure B: UPS in VI configuration

2.1.3 SIZING THE UPS

When calculating size of the UPS, it is important to take into account the following parameters:

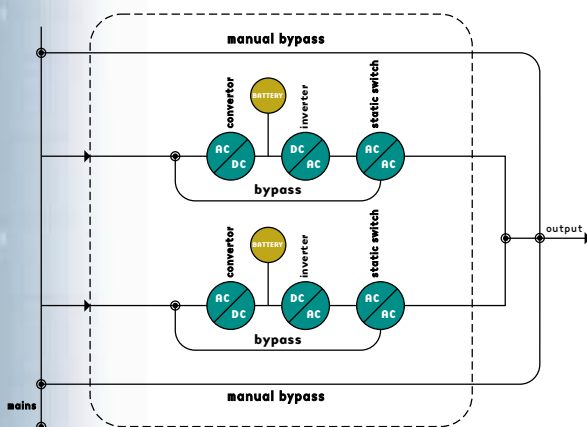
- **Apparent power (VA or kVA).** This is defined as $S = U \times I$ for single-phase loads, $S = (U_{L1} \times I_{L1}) + (U_{L2} \times I_{L2}) + (U_{L3} \times I_{L3})$ for three-phase loads where U is the voltage, I is the current absorbed by the load under normal operating conditions (EN50091-1-1). This information can usually be found in the documents and/or data accompanying the equipment, although it may well be overestimated.
- **Active power (W or kW).** Is defined as $P = S \times FP$ where FP is the power factor. If the value of P and FP of the loads is not specified, the power absorbed must be precisely measured in order to select the right UPS. The typical load of a computer is associated with an FP of between 0.65 and 0.8. The active power is particularly important for sizing the batteries.
- **Overloads.** Overloads are temporary demands from the equipment that exceed permanent steady state absorption values. These are caused by current peaks that may occur when one or more appliances are started.
- **Expansion of the system.** When sizing the UPS, future power extensions must also be considered. In any case, the power of the UPS should always exceed that of the loads to be powered. (Usually a 30% oversizing is recommended).
- **Particular consumers.** At power-on, some loads are characterized by much higher than rated absorption even though for a very short time (from 50 to 100ms). This is the case, for example, of laser printers, some types of lights, isolation transformers, pumps. For loads of this type, it is good practice to oversize the UPS (from 3 to 4 times according to the type load and the UPS selected). When in doubt, or if the absorption parameters of the equipment are not fully known, consult us for correct sizing indications.

2.1.4 CONNECTION OF UPS IN PARALLEL

In medium and high level power installations, various UPS can be connected in parallel:

- to obtain a power supply higher than that of the individual appliance;
- to improve power supply reliability, guaranteeing redundancy.

Connecting UPS in parallel makes it possible to increase the power of the back-up system, even after the first UPS has been installed, or to produce solutions that optimize reliability or simplify use and maintenance of the system.



2.1.5 OPTIONS AVAILABLE

The standard version of the UPS can be improved by adding the following options designed to meet specific customer needs:

A) SEPARATION TRANSFORMER

The UPS can be used without a galvanic isolation transformer, maintaining the neutral arrangements between input and output unchanged. However, in particular cases, a transformer module can be installed to change the downstream neutral arrangements from those upstream.

B) SOLUTIONS FOR REDUCING INPUT HARMONIC CURRENTS

There are various solutions for reducing the harmonic distortion of the input current. For compliance with standards, some UPS models (usually in the single/single-phase up to 10kVA version) are characterized by standard sinusoidal absorption.

For three/single-phase or three-phase UPS's, the user can select the standard version or one with low level distortion. The low distortion version should be selected only if the power of the upstream generator is similar to that of the UPS (for example, if there is a 20kVA generator upstream powering a 20kVA UPS). Otherwise, it is advisable to choose the classical UPS with higher efficiency and lower maintenance costs.

2.2 COMMUNICATION OPTIONS

2.2.1 LOCAL COMMUNICATION

• INDICATOR LAMPS

The simple indicator light on the front panel conveys immediately the status of the UPS and is usually sufficient for small size UPS.

• ALPHANUMERIC DISPLAY

For specific information about UPS operating conditions and electrical parameters, it may be useful to equip the UPS with an alphanumeric display so that the information provided is absolutely clear. It also makes it possible to access particular functions tied to use and diagnostics of the UPS.

2.2.3 REMOTE COMMUNICATION

- **REMOTE COMMUNICATION USING SIGNAL CONTACTS** If the UPS is not readily accessible to the operator, remote signaling may be provided for remote diagnostic of the main operating conditions (at least "general alarm" and "battery operation"). These signals can be sent to the computer systems powered by the UPS, to a signal panel at the customer's or to a control panel supplied with the UPS.

• UPS/USER COMMUNICATION

Using zero-potential contacts or a serial communication line, the UPS can be interfaced with the protected IT equipment for automatic management of system file shutdown in the event of a blackout and to send operators information about UPS status.

• SERIAL COMMUNICATION

For a more detailed remote diagnostic of the UPS, the information can be displayed on an alphanumeric panel or directly on a PC. In these cases, communication takes place on a standard RS232, RS422 or RS485 serial line, permitting complete

transmission of the information via a simple twin pair connection. In some cases, it may be advisable to connect a UPS to the supervision system using existing computer networks (SNMP-Simple Network Management Protocol)

3.1 EUROPEAN TECHNICAL STANDARDS AND LEGISLATION

All UPS must bear the CE marking in compliance with the "73/23/EEC Low Voltage" and "89/336/EEC Electromagnetic compatibility" directives (and related amendments).

UPS compliance with other Directives (for example those relating to construction products and the machinery directive) is not required unless specifically requested by the customer.

CEI, CENELEC and IEC are the recognized regulatory authorities at national, European and international level respectively. The following nationally recognized, European standards on UPS's permit conformity with the Directives and therefore CE marking

3.1.1 SAFETY

- The EN 50091-1-1 (CEI 22-13) standard prescribes the basic safety requirements for UPS accessible to the operator;
- The EN50091-1-2 (CEI 22-16) standard regulates UPS with limited accessibility (inside cabinets, etc.).

3.1.3 ELECTRO-MAGNETIC COMPATIBILITY

The UPS must operate without being affected by disturbances (immunity) and without disturbing (emissions) other equipment, via electro-magnetic interference conducted along the cables from the enclosure.

The EN 50091-2 (CEI 22-9) standard refers to the related prescriptions and test procedures.

3.1.4 PERFORMANCE

The ENV50091-3 (CEI 22-14) draft standard is intended to promote improved understanding between the manufacturer and customer through adequate description of performance and related test methods.

3.1.5 VARIOUS STANDARDS

Other standards relating to UPS installation are:

- HD384/IEC364 (CEI 64-8) for electrical installations in general;
- the CEI 11-20 standard for systems with UPS connected to networks of class I and II;
- the EN 60439-1/IEC439-1 (CEI 17-13) standard on control equipment;
- the EN60529/IEC529 (CEI 70-1) standard on the protection rating of enclosures;
- the EN50272-2 standard (soon to replace the CEI 21-6/3 standard) for the installation of batteries.

3.1.6 OPERATION OF THE UPS IN A WORK CELL

According to the interpretation sheet F10/CEI 64-8 relating to operation of UPS's in a work cell, when a UPS is connected to ground in a TT or TN arrangement, the opening of a protection or of a circuit breaker upstream of the UPS causes temporary modi-

fication of the method by which the neutral (isolated neutral) is connected to ground.

Application of the provisions of Articles 413.1.5.1 and 413.1.5.4 of the above-mentioned CEI 64-8 specification is not necessary as it is unlikely that a second fault will occur after the first fault during the time the back-up power supply is operating.

However, in the case of a mains failure not caused by the opening of a protection ahead of the UPS, this will not function in a cell as there are no changes to the neutral arrangements. In this case, operation is battery-powered. As a result, when the UPS operates temporarily in a cell, the protections established for the IT system need not be provided.

3.1.7 QUALITY SYSTEM CERTIFICATION

UPS manufacturers can provide a quality certificate in relation to the organization, procedures, methods and resources via which they implement an effective quality policy.

Compliance with the UNI EN ISO 9000 standards is certified and constantly verified by external accredited organisms and is guaranteed to customers, end users, suppliers and other organizations by way of the Quality System

UPS MANUFACTURING S.R.L.
I - 37048 S. Pietro di Legnago [VR] - Italy - Viale Europa, 7 - ZAI
Tel. ++39 0442 63 58 11 - Fax ++39 0442 62 90 98
www.riello-ups.com - riello@riello-ups.com

**QUALITY SYSTEM
CERTIFIED BY DNV
=UNI EN ISO 9001=**

Local representative

 **INDEX**



Flexible power, inflexible protection.