

"All In One" CBI series: Uninterruptible Power Supply With DC output

Thank you for having chosen one of our products for your work.
 We are certain that it will give the utmost satisfaction and be a notable help on the job.

General Description

Thanks to "All In One" CBI series of DC-UPS, it will be possible to optimize the power management of your system with one single, extremely compact and cost-effective device, connected directly to the mains. The available power is automatically distributed between load and battery giving priority to the load. Battery can supply the load even with mains so the output power to the load can be twice the nominal power if it is required (Power Boost). When mains failure occurs, the load continues to be supplied by the battery in backup mode. It is also possible to switch on the device with no mains directly from battery. The "Battery Care" algorithm performs real time automatic automatic automatic charging, battery charge optimization during time, flat battery recovery and real time diagnosis during installation and operation. Temperature compensation is possible to connect the temperature sensor probe. The real time auto-diagnostic system monitors battery faults such as sulfated battery, shorted cells, accidental reverse polarity connection or disconnection of the battery. Every fault is signalled by a blink code of Diagnosis Led or via Modbus. The battery is not charged or easily detected and removed during the installation and after sales. The continuous monitoring of battery efficiency reduces risk of battery damage and allows a safe operation in permanent connection. Prefined curves can be selected by jumpers or DIP switch to optimize the charge of different battery types (Open Lead Acid, AGM and Gel Lead Acid, Ni-Cd and Ni-MH) and can be easily recharged in the same device. Charging curves can be customized via Modbus (only in some models). Output dry contacts are used to signal both backup and power supply conditions. A rugged casing with bracket for DIN rail mounting provides IP20 protection degree.

Main Characteristics

- Universal input voltage: single-phase 115-230-277 Vac.
- Load output: 24 Vdc 3.5,10,20A; 12 Vdc 3,6,10,15,35A 48 Vdc 5,10A
- Battery output: 24Vdc 3,5,10,20A; 12 Vdc 3,6,10,15,35A; 48 Vdc 5,10A
- "All In One" solution: power supply, battery, battery replacement, backup mode in one single device connected directly to the mains
- Suited for different battery types: Open Lead Acid, Sealed Lead Acid, AGM and Gel Lead Acid, Ni-Cd and Ni-MH are available as options. Four stage charging curve for Lead Acid batteries: 3-stage ULoU (Bulk, Absorption, Trickle) plus Recovery stage for deeply discharged batteries
- Automatic diagnosis of battery status and battery Life Test function (Battery Care)
- Switching technology with high efficiency
- Protected against short circuit, overload and inverted polarity
- Output dry contact for signaling Low Battery or Battery Replacement and Fault system
- Output dry contact for signaling Mains or Backup
- IP20 protection degree
- Space saving on DIN rail

Safety and warning notes

WARNING – Explosion Hazard Do not disconnect Equipment unless power has been switched off or the area is known to be non-hazardous.

WARNING – Explosion Hazard. Substitution of components may impair suitability for class 1, Division 2.

WARNING – Switch off the system before connecting the module. Never work on the machine when it is live.

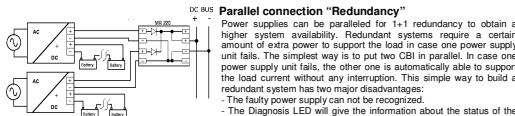
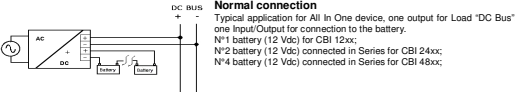
The device must be installed in accordance with UL508 or UL60950. The device must have a suitable installation facility outside the power supply unit, via which can be switched to idle. Danger of fatal injury!

Connection (terminal and wiring):

Cable Connection: The following cable cross-sections may be used:									
	Solid	Stranded	AWG	Torque (Nm)	Stripping Length	All In One	1 Phase L N PE Input	1 Phase L N PE Input	
M	0.2 – 2.5	0.2 – 2.5	24 – 14	0.5 – 0.6 Nm	7 mm	Size 1 and 2			
M	0.2 – 2.5	0.2 – 2.5	24 – 14	0.8 – 1.0 Nm	7 mm	Size 3 and 4			
O	0.2 – 2.5	0.2 – 2.5	24 – 14	0.5 – 0.6 Nm	7 mm	Size 1 and 2			
O	0.2 – 2.5	0.2 – 2.5	24 – 14	0.8 – 1.0 Nm	7 mm	Size 3 and 4			
Signal	0.2 – 2.5	0.2 – 2.5	24 – 14	0.5 – 0.6 Nm	7 mm	All types			

The connection is made by the screw type 2.5 mm² or 4.0 mm² terminal blocks. Use only copper cables that are designed for operating temperatures of + 75 °C. Wiring terminal shall be marked to indicate the proper connection for the power supply.

Output Power connections:



The models with software for parallel ("P" suffix) can be used also simply not connecting with each other with the RJ45 cable.

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Output Load (Mains input ON)

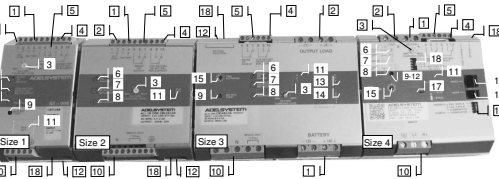
The output Load in normal mode. Mains Input Vac Voltage present, follow the charging battery dc output voltage. The minimum and maximum range stabilized are the following:
 CBI 12xx: 11 – 14.4 Vdc; 15.5 Vdc for NiCd (Without battery connected out. Voltage fixed at 12Vdc)
 CBI 24xx: 22 – 28.5 Vdc; 30 Vdc for NiCd (Without battery connected out. Voltage fixed at 24Vdc)
 CBI 48xx: 44 – 57.6 Vdc; 60 Vdc for NiCd (Without battery connected out. Voltage fixed at 48Vdc)
 Thanks to the All In One units, it will be possible to manage the power. The available power, is automatically allocated between load and battery, supplying power to the first priority of the unit; thus it is not necessary to double the power and also the power available for the battery will go to the load if the load requires it.
 In "Power Boost Mode" the maximum current on the load output is the 2 times the rated current 2 x In (Load + In) batt) in continuous operation and 3 times the rated current 3 x In (load + 2In) batt) for 4 seconds; after this parameter the devices is electrically protected against overload and short circuit.
 In "Power Boost Mode", if the current of the battery generate current to the load for a time more than 4 minutes, the device give message (8 Blink), consequently means that the battery is discharging. If the Mains input Voltage fall below a Threshold level (50% of the Typ. Vac input) the battery is immediately connected to the Output Load, without any interruption.
 Voltage dip: In this situation the voltage in the output load it is the same of the battery.
To Avoid deep battery discharge. The battery will supply the load until battery voltage reaches 1.5 Vcell. Below this level the device automatically switches off to prevent Deep discharge and battery damage.

Output Load in Buffer Mode (Mains input OFF)

Some example of buffering time depending on LOAD Output in function to the Ah of the battery.

Buffering Time	BATT1.2 Ah	BATT 3 Ah	BATT7.2 Ah	BATT12 Ah	BATT100 Ah
Load 1.5 A	20 min	60 min	200 min	400 min	/
Load 3 A	8 min	30 min	120 min	240 min	/
Load 5 A	3 min	15 min	55 min	100 min	/
Load 7 A	2 min	10 min	30 min	60 min	/
Load 10 A	No	7 min	20 min	45 min	20 h
Load 12 A	No	3 min	12 min	30 min	600 min
Load 15 A	No	9 min	20 min	40 min	400 min
Load 20 A	No	7 min	13 min	20 min	240 min

Operating and Display Element:



No. 1: Battery Connection Port:

Connect the battery between pins 3 (-) and 4 (+)
 One battery (12 Vdc) for CBI 12xx;
 Two battery (12 Vdc) connected in series for CBI 24xx;
 Four battery (12 Vdc) connected in series for CBI 48xx;

No. 2: Output Load:

Connect this output to the load 1 (-), 2 (+).

No. 3: Charging Level Current:

In order to protect the battery from excessive charging currents, the device allows you to limit the maximum charge current by adjusting the trimmer. It allows you to limit from max in up to 20% of current In. To determine the maximum battery charge current, see the battery manufacturer's Data Sheet. If it is not possible, consider that on average the maximum charge current is 10% of Ah's rated battery current. The data is suitable for both Lead Acid and NiCd batteries.

Page 3 - Chapter: Output Load (Mains input ON)

No. 9: 12: Start From Battery Only. (No Mains Vac)

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No. 10: Input AC Port pin. L – N –:

1 Phase Switching Power Supplies L, N, PE.
 Size 2 and Size 3 BRIDGE ONLY for input 115 Vac, and connect L, N, PE.

No. 11: Auxiliary Output "AUX 1"

Remove the window label to find the connector.
 It is possible to connect the Temperature sensor probe and apply it on the battery. The function of the probe is for temperature battery compensation. With this it is possible to adjust the specifications of the EN54-4 fire norm.
 Size 1,2,3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

Battery Temperature Compensation Charge (not for NiCd)
 Connecting to Auxiliary Output AUX1 the cable RTEMP (supplied separately), the CBI will vary the voltage of battery charging depending on the temperature:

Fast Charge	Trickle charge
+5mV/°C x n. of Cells from -8°C to +45°C +14mV/Cell + -200mV/Cell compared to the value at 20°C	+3mV/°C x n. of Cells from -20°C to +45°C +120mV/Cell + -120mV/Cell compared to the value at 20°C

The device stop to charge the battery if the temperature is less than -20°C or greater than +45°C. The alarm fault battery could be signalled by 7 blink code.

The sensor placed on cable RTEMP must be applied on the battery.

No. 13: Auxiliary Output "AUX 2"

Present only in Sizes 3 and Sizes 4, connection MODBUS via RJ45 connector. See instruction MODBUS communications protocol. CANBUS is implemented.

No. 14: Auxiliary Output "AUX 3"

Present only in Sizes 4. The function is the same of Auxiliary Output "AUX 2"

No. 15: Buffering Time Setting

On models Size 3 and Size 4 is possible to set a buffering time. It can be selected by setting the desired value on the rotary switch 13. Buffering time is initiated when the mains is switched OFF. The LOAD output will be ON for the selected time.

If the switch is in position 0, the LOAD output will be in ON state until the battery is completely discharged. Any way to prevent damage risks, the unit disconnects the batteries when a minimum voltage level is reached.
 For units Size 1 or 2 you have to version with the extension CBXXXXATx. The LOAD output will be in ON state until the battery is completely discharged. It is however possible to request factory customized versions with specific buffering time setting.

No. 16: Bus Termination (Size 4)

Caution: Switch off the system before Setting the Jumper.
 Read the MODBUS/CANBUS instruction manual to learn about the operational functions available.
 Jumper Settings always active during all states of the system.

No. 17: Selection Out Voltage (Size 4)

Caution: Switch off the system before Setting the Jumper.

Functional Setting	Function
Output Voltage selection	12 Vdc; 24V Output Voltage
Input Voltage selection	24V Output Voltage Default setting

Page 4 - Chapter: Operating and Display Element:























No. 18: Battery Management Configurations (Sizes 1,2,3,4)

Preliminary Operations: One device for all battery types.
 Completely automatic, all devices are suitable to charge most battery types thank to User Selectable charging curves. They can charge open lead acid, sealed lead acid, Gel, Ni-Cd and Ni-MH batteries. It is possible to change or add other charging curves connecting the device to a portable PC.
 Caution: Switch off the system before Setting the jumper. Only jumper in position 6 is Refreshed also with power ON.

Battery Type Selection	Jumper Position (Size 1)	Jumper Position (Size 2)	Jumper Position (Size 3)	Dip Switch Position (Size 4)	Trickle/Float at charge (Volt/Cell)	Fast/Bulk charge (Volt/Cell)
Open Lead	ON	ON	ON	ON	2.23	2.40
AGM Low	ON	ON	ON	ON	2.25	2.40
AGM High	ON	ON	ON	ON	2.27	2.40
Gel Battery	ON	ON	ON	ON	2.30	2.40

Battery Type Selection (NiCd)	Jumper Position (Size 1)	Jumper Position (Size 2)	Jumper Position (Size 3)	Dip Switch Position (Size 4)	Trickle/Float charge	Fast/Bulk charge
Open Lead	ON	ON	ON	ON	2.23	2.40
(AGM) Low	ON	ON	ON	ON	2.25	2.40
Gel Battery	ON	ON	ON	ON	2.30	2.40
NiCd	ON	ON	ON	ON	1.4V/cell	1.5V/cell

Functional Setting	Function
Battery Life test ON	Jumper present or dip switch ON: Life test enabled (only for NiCd)

CBI - All in ONE	12Vdc				12/24Vdc	24Vdc				48Vdc	
											
Model	CBH123A	CBH126A	CBH1210A	CBH1235A	CBH2801224A	CBH243A	CBH245A	CBH2410A	CBH2420A	CBH485A	CBH4810A
INPUT DATA											
Nominal Input Voltage / Tensione d'ingresso nominale	115 – 230 – 277Vac	115 – 230 – 277Vac	115 – 230 – 277Vac	115 / 230 – 277Vac	115 – 230 – 277Vac	115 – 230 – 277Vac	115 – 230 – 277Vac	115 / 230 – 277Vac	115 / 230 – 277Vac	115 / 230 – 277Vac	115 / 230 – 277Vac
Input Voltage Range / Campo di funzionamento	90 – 305Vac	90 – 305Vac	90 – 305Vac	90 – 135Vac 180 – 305Vac	90 – 135Vac 180 – 305Vac	90 – 305Vac	90 – 305Vac	90 – 135Vac 180 – 305Vac	90 – 135Vac 180 – 305Vac	90 – 135Vac 180 – 305Vac	90 – 135Vac 180 – 305Vac
Inrush Current (Vn and In Load) I _t / Corrente di Inserzione	≤ 36 A ≤ 5msec	≤ 36 A ≤ 5msec	≤ 36 A ≤ 5msec	≤ 80 A ≤ 5msec	≤ 16 A ≤ 5msec	≤ 36 A ≤ 5msec	≤ 36 A ≤ 5msec	≤ 42 A ≤ 5msec	≤ 80 A ≤ 5msec	≤ 42 A ≤ 5msec	≤ 35 A ≤ 5msec
Frequency / Frequenza di Ingresso	47 – 63 Hz	47 – 63 Hz	47 – 63 Hz	47 – 63 Hz	47 – 63 Hz	47 – 63 Hz	47 – 63 Hz	47 – 63 Hz	47 – 63 Hz	47 – 63 Hz	47 – 63 Hz
Input Current (115 – 230Vac) / Assorbimento	2.8 – 1.3A	2.8 – 1.3A	2.8 – 1.3A	8.0 – 4.2A	5.5 – 3A	2.8 – 1.3A	2.8 – 1.3A	3.3 – 2.2A	3.3 – 2.2A	3.3 – 2.2A	8.0 – 4.2A
Internal Fuse / Fusibile Interno (non sostituibile)	4A	4A	4A	10A	6.3A	4A	4A	6.3A	10A	6.3A	10A
External Fuse (recommended) / Fusibile Esterno raccomandato	10A	10A	10A	16A	16A	10A	10A	16A	16A	16A	16A
OUTPUT DATA											
Output Vdc / I _n / Tensione di uscita Vdc / I _n	12Vdc – 3A	12Vdc – 6A	12Vdc – 10A	12Vdc – 35A	12Vdc 15A / 24Vdc 10A	24Vdc – 3A	24Vdc – 5A	24Vdc – 10A	24Vdc – 20A	48Vdc – 5A	48Vdc – 10A
Output Current (In)	3A	6A	10A	35A	15A 12Vdc / 10A 24Vdc	3A	5A	10A	20A	5A	10A
Dissipation Power load max (W)	15	18	25	68	28	18	25	48	68	48	68
Minimum load / Carico minimo	No	No	No	No	No	No	No	No	No	No	No
Efficiency (50% of In) / Rendimento tipico	≥ 89%	≥ 89%	≥ 89%	> 90%	> 91%	≥ 89%	≥ 89%	≥ 83%	> 90%	≥ 83%	> 91%
Short-circuit protection / Protezione contro il corto circuito	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Over Load protection / Protezione sovraccarico	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Over Voltage Output protection / Protezione sovratensione in uscita	Yes (Typ. 35Vdc)	Yes (Typ. 35Vdc)	Yes (Typ. 35Vdc)	Yes (Typ. 35Vdc)	Yes (Typ. 35Vdc)	Yes (Typ. 35Vdc)	Yes (Typ. 35Vdc)	Yes (Typ. 35Vdc)	Yes (Typ. 35Vdc)	Yes (Typ. 90Vdc)	Yes (Typ. 90Vdc)
Overheating Thermal Protection / Protezione sovratemperatura	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reverse battery protection / Protezione inversione batteria	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sulfated battery check / Controllo batteria solfatata	Yes by Jumper	Yes by Jumper	Yes by Jumper	Yes by Jumper	Yes by Deep Switch	Yes by Jumper	Yes by Jumper	Yes by Jumper	Yes by Jumper	Yes by Jumper	Yes by Jumper
LOAD OUTPUT / USCITA CARICO											
Output voltage (at IN) Vdc / Tensione di uscita (a IN) Vdc	10 – 14.4Vdc (15.5Vdc for Ni-Cd)	10 – 14.4Vdc (15.5Vdc for Ni-Cd)	10 – 14.4Vdc (15.5Vdc for Ni-Cd)	10 – 14.4Vdc (15.5Vdc for Ni-Cd)	10 – 14.4Vdc (15.5Vdc for Ni-Cd) 22 – 28.8Vdc (31Vdc for Ni-Cd)	22 – 28.8Vdc (31Vdc for Ni-Cd)	22 – 28.8Vdc (31Vdc for Ni-Cd)	22 – 28.8Vdc (31Vdc for Ni-Cd)	22 – 28.8Vdc (31Vdc for Ni-Cd)	22 – 28.8Vdc (31Vdc for Ni-Cd)	44 – 57.6Vdc (62Vdc for Ni-Cd) 44 – 57.6Vdc (62Vdc for Ni-Cd)
Start up with strong load (capacitive load)/ Start up con carichi capacitivi	Yes, Unlimited	Yes, Unlimited	Yes, Unlimited	Yes, Unlimited	Yes, Unlimited	Yes, Unlimited	Yes, Unlimited	Yes, Unlimited	Yes, Unlimited	Yes, Unlimited	Yes, Unlimited
Residual Ripple / Ripple Residuo	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp
Nominal Current IN = Iload	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%	1.1 x In A ± 5%
Continuous current (without battery) Iload = In	3A	6A	10A	35A	15A 12Vdc / 10A 24Vdc	3A	5A	10A	20A	5A	10A
Max continuous current (with battery) Iload = In + I _{batt}	6A	12A	20A	70A	30A 12Vdc / 20A 24Vdc	6A	10A	20A	40A	10A	20A
Max current Output Load: (Main Input) Iload (4sec.)	9A max	18A max	30A max	105A max	max. 45A 12Vdc / 30A 24Vdc	9A max	15A max	30A max	60A max	15A max	30A max
Max current Output Load: (Back Up) Iload (4sec.)	6A max	12A max	20A max	70A max	max. 30A 12Vdc / 20A 24Vdc	6A max	10A max	20A max	40A max	10A max	20A max
Push Button or Remote Input Control (AMP type connector) Start from Battery without main	No (1)	No (1)	No (1)	Yes	Yes	No	No	No	Yes	No	Yes
Time Buffering: (switch off output without main input)	(2)	(2)	(2)	0.5;1;3;5;10;15; 20; 30; 45;60;∞	0.5;1;3;5;10;15; 20; 30; 45;60;∞	(2)	(2)	5 min standard - Require: SW S31	0.5;1;3;5;10;15; 20; 30; 45;60;∞	5 min standard - Require: SW S31	0.5;1;3;5;10;15; 20; 30; 45;60;∞
Threshold alarm Battery almost flat	10 – 11 Vdc batt	10 – 11 Vdc batt	10 – 11 Vdc batt	10 – 11 Vdc batt	10 – 11 Vdc batt / 20 – 21 Vdc batt	20 – 21 Vdc batt	20 – 21 Vdc batt	20 – 21 Vdc batt	20 – 21 Vdc batt	40 – 42 Vdc batt	40 – 42 Vdc batt
Protections against total discharge	9 – 10 Vdc batt	9 – 10 Vdc batt	9 – 10 Vdc batt	9 – 10 Vdc batt	9 – 10 Vdc batt / 19 – 20 Vdc batt	19 – 20 Vdc batt	19 – 20 Vdc batt	19 – 20 Vdc batt	19 – 20 Vdc batt	38 – 40 Vdc batt	38 – 40 Vdc batt
BATTERY CHARGER OUTPUT / USCITA CARICA BATTERIA											
Bulk charge (Typ. at I _b) / Carica Veloce	14.4Vdc	14.4Vdc	14.4Vdc	14.4Vdc	14.4Vdc / 28.8Vdc	28.8Vdc	28.8Vdc	28.8Vdc	28.8Vdc	57.6Vdc	57.6Vdc
Short circuit Element Detection / Relevazione elemento in corto circuito	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Max.Time Boost–Bulk charge (Typ. at I _b) / Tempo massimo Carica Veloce	15h	15h	15h	15h	15h	15h	15h	15h	15h	15h	15h
Min.Time Boost–Bulk charge (Typ. at I _b) / Tempo minimo Carica Veloce	1min.	1min.	1min.	1min.	1min.	1min.	1min.	1min.	1min.	1min.	1min.
Trickle-Float charge (Typ. at I _f) / Carica di mantenimento	13.75Vdc	13.75Vdc	13.75Vdc	13.75Vdc	13.8Vdc / 27.6Vdc	27.5Vdc	27.5Vdc	27.5Vdc	27.5Vdc	55Vdc	55Vdc
Recovery Charge / Carica di recupero	2 – 9Vdc	2 – 9Vdc	2 – 9Vdc	2 – 9Vdc	2 – 10Vdc / 2 – 20Vdc	2 – 16Vdc	2 – 16Vdc	2 – 16Vdc	2 – 16Vdc	2 – 24Vdc	2 – 24Vdc
Turn-On delay after applying mains voltage / Accensione con tensione di rete	1sec. Max	1sec. Max	1sec. Max	1sec. Max	3sec. Max	1sec. Max	1sec. Max	1.5sec. Max	1sec. Max	1.5sec. Max	1sec. Max
End of charging current (Bulk charge)	0.3A	0.3A	0.3A	0.3A	6% of charging current limiting	0.3A	0.3A	0.3A	0.3A	0.3A	0.3A
Charging max I _{batt} / Corrente max. di Carica	3A ± 5%	6A ± 5%	10A ± 5%	35A ± 5%	15A ± 5% 12Vdc / 10A ± 5% 24Vdc	3A ± 5%	5A ± 5%	10A ± 5%	20 A ± 5%	5A ± 5%	10A ± 5%
Charging current Limiting I _b (I _{batt}) / Limitazione Corrente di Carica	20 ÷ 100 % / I _{batt}	20 ÷ 100 % / I _{batt}	20 ÷ 100 % / I _{batt}	10 ÷ 100 % / I _{batt}	10 ÷ 100 % / I _{batt}	20 ÷ 100 % / I _{batt}	20 ÷ 100 % / I _{batt}	20 ÷ 100 % / I _{batt}	10 ÷ 100 % / I _{batt}	20 ÷ 100 % / I _{batt}	10 ÷ 100 % / I _{batt}
Jumper Config.Type Battery (NiCd optional) / Configurazione Tipo Batteria	2.23 V/cell Open Lead, 2.25 V/cell Sealed Lead, 2.27 V/cell Sealed Lead, 2.3 V/cell gel; NiCd 1.51V										
Quiescent Current / Consumo da batteria max.	≤100mA	≤100mA	≤100mA	≤100mA	≤100mA	≤100mA	≤100mA	≤100mA	≤100mA	≤100mA	≤100mA
Remote Input Control (AMP Type connector)	Bulk / Trickle	Bulk / Trickle	Bulk / Trickle	Bulk / Trickle	Bulk / Trickle	Bulk / Trickle	Bulk / Trickle	Bulk / Trickle	Bulk / Trickle	Bulk / Trickle	Bulk / Trickle
Characteristic Curve / Caratteristiche di Carica	I/UoUo, Automatic, 3 stage / I/UoUo, Automatico a 3 Stadi										
SIGNAL OUTPUT (RELAY) / SEGNALAZIONE RELÉ USCITA											
Main or Backup Power	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Low Battery	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fault Battery	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUXILIARY OUTPUT											
Temp. Charging probe / Carica compensata in temperatura	Yes RJ45	Yes RJ45	Yes RJ45	Yes RJ45	Yes RJ11	Yes RJ45	Yes RJ45	Yes RJ45	Yes RJ45	Yes RJ45	Yes RJ45
Parallel connection / Connessione in parallelo	No	No	No	Yes	No	No	No	No	Yes	No	Yes
MODBUS	No	No	No	Yes	Yes	No	No	No	Yes	No	Yes
CLIMATIC DATA											
Ambient Temperature operation / Temperatura Ambiente di Lavoro	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C	-25 ÷ +70°C
De rating T ³ > (In) / De rating T ³ > (In)	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C	> 50° -2.5%(In) / °C
Ambient Temperature Storage / Temperatura max. Magazzino	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C	-40 ÷ +85°C
Humidity at 25 °C / Umidità	95% to 25°C	95% to 25°C	95% to 25°C	95% to 25°C	95% to 25°C	95% to 25°C	95% to 25°C	95% to 25°C	95% to 25°C	95% to 25°C	95% to 25°C
Cooling / Raffreddamento	Auto Convection	Auto Convection	Auto Convection	Auto Convection	Auto Convection	Auto Convection	Auto Convection	Auto Convection	Auto Convection	Auto Convection	Auto Convection
GENERAL DATA											
Isolation Voltage (IN / OUT) / Tensione di Isolamento (IN / OUT)	3000Vac	3000Vac	3000Vac	3000Vac	3000Vac	3000Vac	3000Vac	3000Vac	3000Vac	3000Vac	3000Vac
Isolation Voltage(IN / PE) / Tensione di Isolamento(IN / TERRA)	1605Vac	1605Vac	1605Vac	1605Vac	1605Vac	1605Vac	1605Vac	1605Vac	1605Vac	1605Vac	1605Vac
Isolation Voltage(OUT / PE) / Tensione di Isolamento(OUT/TERRA)	500Vac	500Vac	500Vac	500Vac	500Vac	500Vac	500Vac	500Vac	500Vac	500Vac	500Vac
Protection Class (EN/IEC 60529) / Protezione Classe	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Reliability (MTBF IEC 61709) / Affidabilità	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h	> 300 000 h
Pollution Degree Environment / Grado d'inquinamento ambientale	2	2	2	2	2	2	2	2	2	2	2
Connection Terminal Blocks Screw Type / Dimensione morsetti	2.5mm (24-14 AWG)	2.5mm (24-14 AWG)	2.5mm (24-14 AWG)	4mm (30-10 AWG)	4mm (30-10 AWG) 2.5mm(24-14 AWG)	2.5mm (24-14 AWG)	2.5mm (24-14 AWG)	2.5mm (24-14 AWG)	2.5mm (24-14 AWG)	4mm (30-10 AWG)	4mm (30-10 AWG)
Protection class (with PE connected) / Grado di protezione (con cavo di terra collegato)	I	I	I	I	I	I	I	I	I	I	I
Dimension (w-h-d)/Dimensioni (l-h-p) mm	65x115x135 mm	65x115x135 mm	65x115x135 mm	150x115x135 mm	115x115x135 mm	65x115x135 mm	65x115x135 mm	100x115x135 mm	150x115x135 mm	100x115x135 mm	150x115x135 mm
Weight / Peso	0.60 Kg approx	0.60 Kg approx	0.60 Kg approx	1.55 Kg approx	0.85 Kg approx	0.60 Kg approx	0.60 Kg approx	0.85 Kg approx	1.55 Kg approx	0.85 Kg approx	1.55 Kg approx
Safety Standard Approval / Conformità ed Approvazioni	CE 	CE 	CE 	CE 	CE 	CE 	CE 	CE 	CE 	CE 	CE 

(1) - Options to be defined by Order/S (ex: CBIXXXA/S), Push Button not available
(2) - Yes if required by order /TB1/TB2/TB3..

Optional for auxiliary Output: Temp Charging probe 1m or 3m lenght. Remote monitoring Display. Modbus/Can Bus Cable. Paralleling Cable.