





| > Ratings   |   |                     |
|---|---|---------------------|
| 24 V DC   | 6 A (50 A at peak)  | 12 A (50 A at peak) |
| 48 V DC*  |   |                     |
| The currents $I_n$ shown are at rated output power.       |   |                     |
| *The Lithium model is only available in 48 V DC.          |   |                     |
| > Standard -based specifications                          |   |                     |
| Safety  | • EN IEC 62368-1 (2020) + A11 (2020)  |                     |
| EMC - Immunity  | • EN IEC 61000-6-2 (2019)   |                     |
| EMC - Emission  | • EN IEC 61000-6-4 (2019) • EN IEC 61000-3-2 (2019) • EN 55032 • EN 55024   |                     |
| Trade   | • NFC 13-100 compliant  |                     |
| Environment   | This product range meets the environmental requirements of ISO 14001, RoHS and WEEE standards.  |                     |
|   |     |                     |
| > Environmental specifications                            |   |                     |
| Humidity  | <b>during storage:</b> relative humidity of 10% to 95% non-condensing<br><b>in operation:</b> relative humidity of 20% to 95% non-condensing  |                     |
| Storage temperature                                       | -25°C to +85°C  |                     |
| Operating temperature                                     | 75% of load   | -5°C to +50°C       |
|   | 100% of load  | -5°C to +40°C       |
| Altitude  | Above 2,000 m, the maximum temperature is lowered by 5% every 1,000 m   |                     |
| MTBF  | 100,000 h (with battery Lithium) and 200,000 h (without battery) at 25 °C product external environment, rated mains voltage, 75% load   |                     |
| > Input characteristics                                   |   |                     |
| Voltage   | 99 to 264 V AC  |                     |
| Frequency   | 45 to 65 Hz   |                     |
| Neutral system  | TT - TN - IT  |                     |
| Inrush current  | limited by NTC  |                     |
| Upstream circuit breaker required                         | D Curve   |                     |
| Class   | Class 1   |                     |
|   | Charger 300 W   | Charger 600 W       |
| Mains consumption @ 99 V                                  | 4 A   | 8 A                 |
| Mains consumption @ 264 V                                 | 2 A   | 4 A                 |
| > Efficiency  |   |                     |
| At 20% load   | 84%   |                     |
| At nominal load   | 90%   |                     |
| > Output characteristics                                  |   |                     |
| Nominal voltage   | 24 V DC   | 48 V DC             |
| Floating voltage ( $U_n$ ) adjusted to half load and 25°C | 27.2 V +/-0.5%  | 54.4 V +/-0.5%      |
| Charger current limitation                                | $I_n$ : 6 A to 12 A depending on model  |                     |
| > Charger consumption on battery in stand-alone mode      |   |                     |
|   | 24 V DC   | 48 V DC             |
| 300 W   | 94 mA   | 37 mA               |
| 600 W   | 106 mA  | 73 mA               |

| > For reliable output voltage                                  |   |                  |                   |   |                         |                                 |  |
|--|---|------------------|-------------------|---|-------------------------|---------------------------------|--|
| Protection from external aggressions                           | <ul style="list-style-type: none"> <li>- Resistance to all types of external aggression:                             <ul style="list-style-type: none"> <li>• Overvoltages encountered in the mains grid (lightning, industrial, isolation fault on impedant neutral, etc.)</li> <li>• Short-circuit on primary by slow-blow timed fuse on phase.</li> <li>• Differential mode shock waves by varistor and fuse.</li> <li>• Battery polarity reversals.</li> <li>• Overvoltages on secondary.</li> <li>• Overcurrents and short circuits on secondary.</li> <li>• Short circuits inside the product by primary fuse.</li> <li>• Rises in external temperatures (outside specified range).</li> </ul> </li> </ul>                                  |                  |                   |   |                         |                                 |  |
| Charger current limitation management                          | <ul style="list-style-type: none"> <li>- The output current limitation can start a charging cycle on a discharged battery.</li> <li>• Protects the product completely from short-circuits on the installation.</li> <li>• Protection selectivity is provided by fuses on each load output and the battery circuit.</li> </ul>   |                  |                   |   |                         |                                 |  |
| Control and high-performance filtering                         | <ul style="list-style-type: none"> <li>- Particularly efficient output voltage regulation                             <ul style="list-style-type: none"> <li>• Static control &lt; 0.5% of <math>U_n</math>.</li> <li>• Dynamic control &lt; 5% of <math>U_n</math> for cumulative variations of the mains and the load (10% to 90%).</li> </ul> </li> <li>- Boosted filtering that eliminates all interference and reduces the ripple on the DC output voltage. Battery capacity preserved and guaranteed optimum operation of systems.                             <ul style="list-style-type: none"> <li>• LF rms ripple &lt; 0.5% of <math>U_n</math>.</li> <li>• HF ripple (20 MHz-50 Ω) &lt; 4% of <math>U_n</math>.</li> </ul> </li> </ul> |                  |                   |   |                         |                                 |  |
| > For the control and management of the emergency power source |   |                  |                   |   |                         |                                 |  |
| LED Test function  | The two LED light up for one second when the power is switched on.  |                  |                   |   |                         |                                 |  |
| System control   | <ul style="list-style-type: none"> <li>- <b>Monitoring:</b> <ul style="list-style-type: none"> <li>• State of mains, battery and load fuses.</li> <li>• Presence or absence of battery.</li> <li>• Temperature inside the cabinet.</li> <li>• Battery voltage.</li> <li>• Operating status.</li> <li>• Presence of mains voltage in the correct operating range.</li> </ul> </li> </ul>   |                  |                   |   |                         |                                 |  |
| Battery charge management                                      | <ul style="list-style-type: none"> <li>- <b>This function is essential</b> to achieve the theoretical service life and guarantee optimum battery operation.                             <ul style="list-style-type: none"> <li>• The charge voltages are factory set.</li> <li>• They comply with the stipulations of the battery manufacturers.</li> <li>• The charger incorporates battery charge current limitation.</li> </ul> </li> </ul>  |                  |                   |   |                         |                                 |  |
| Battery safeguard  | <ul style="list-style-type: none"> <li>- <b>Charger disconnects automatically at the end of battery discharge</b> to preserve battery life. Prevents batteries from becoming too discharged, which would cause irreparable deterioration in performances (cut-off threshold 1.8 V/cell at +/-0.5%).</li> </ul>  |                  |                   |   |                         |                                 |  |
| Battery Circuit Test function                                  | Every thirty seconds for the first twenty minutes, then every fifteen minutes.  |                  |                   |   |                         |                                 |  |
| Battery Health Test function                                   | Impedance test performed every sixteen hours (internal resistance measurement).   |                  |                   |   |                         |                                 |  |
| Temperature compensation                                       | -3 mV/cell/°C (on lead battery models only)   |                  |                   |   |                         |                                 |  |
| Restart (C13-100)  | By local or remote manual action. After a configurable back-up time, the load will be disconnected from the battery. The restart button blinks and indicates a restart stand-by. "Restart?", "Restart in progress" or "Restart impossible" is displayed.  |                  |                   |   |                         |                                 |  |
| Cold start   | Start up without the mains present, only using the battery  |                  |                   |   |                         |                                 |  |
| Configurable back-up time                                      | Via LCD screen (30 min, 1 h, 2 h, 4 h, 8h, 12h, no limit).  |                  |                   |   |                         |                                 |  |
| Wind turbine function  | Delays the remote restart. The execution of the order can be delayed from 1 to 30 s, configurable via the LCD screen.   |                  |                   |   |                         |                                 |  |
| > For optimum communication                                    |   |                  |                   |   |                         |                                 |  |
| - LEDs for status display and control                          |   |                  |                   |   |                         |                                 |  |
| LED restart button   | ENERGO awaiting restart   |                  |                   |   |                         |                                 |  |
|  | Steady green  | Flashing green   | Steady yellow     | Flashing yellow                           | Fast flashing yellow    | Steady red                      | Off                                      |
| Battery LED  | Battery charged   | Battery charging | Battery operation | - Low battery<br>- End of autonomy (SoC)* | Lifespan Default (SoH)* | Battery test fault              | Battery disconnected in restart stand-by |
| User LED   | Load powered  | -                | -                 | -   | -                       | - Charger fault<br>- Fuse fault | Load disconnected                        |
| * present on ENERGO RS   |   |                  |                   |   |                         |                                 |  |

**> For optimum communication**

**- Digital display**

Display and remote reporting of information

The product displays the standard menu constantly. The standard menu display is incremented every ten seconds to indicate the next item of information and runs on a loop. Pressing and holding (1 s) is used to access the configuration menu. Pressing and holding again once in the configuration menu gives access to one of the proposed sub-menus. Press and hold to select a variable in one of the sub-menus. When selected, variable has an \* next to it.

**Two menus:**

- The Standard Menu displays the information regarding
  - the battery voltage and current,
  - the output voltage and current
  - the mains, charger, battery or fuse fault
  - the remaining autonomy (lead model)
  - the end-of-life and replacement of the battery
- The Configuration Menu allows to select
  - the language (Lead model: French/English/German; Lithium model: French/English)
  - the duration of the autonomy (Lead model: 0.5h/1h/2h/4h/8h/12h/no limit; Lithium model: 0.5h/1h/2h/4h)
  - the restart delay (0 to 30s)
  - the battery type (lead model)
  - to do a battery test (lithium model)

**- Remote reporting and restart**

|                  | ENERGO  |                             | ENERGO RS  |                             |
|------------------|---|-----------------------------|--|-----------------------------|
| <b>Terminals</b> |   |                             |  |                             |
| 1-2              | General fault (charger fault, battery, impedance) | Positive safety dry contact | General fault (charger fault, battery, impedance, mains) | Positive safety dry contact |
| 3-4              | Présence secteur                                  | Positive safety dry contact | End of battery life alarm                                | Positive safety dry contact |
| 5-6              | End of battery life alarm                         | Positive safety dry contact | RS485 Communication                                      | Liaison série               |
| 7-8              | Restart   | Relance à distance          | Restart  | Relance à distance          |

**> Connection specifications**

|                           |                         |
|---------------------------|-------------------------|
| Screw-type terminal block |                         |
| Mains                     | max. 4 mm <sup>2</sup>  |
| Batteries                 | Cabling supplied        |
| Load (two outputs)        | max 10 mm <sup>2</sup>  |
| Alarm reporting           | max 2.5 mm <sup>2</sup> |

**> Cabinet characteristics**

|             | Cabinet dimensions<br>W x H x D (mm) | Weight (kg) | IP   | Cabinet        | Type                  |
|-------------|--------------------------------------|-------------|------|----------------|-----------------------|
| C85 Lead    | 408 x 408 x 224                      | 16 - 50     | IP31 | Metal RAL 7035 | Wall or floor-mounted |
| C85 Lithium |                                      | 27          |      |                |                       |

**> Cabinet incorporating batteries**

|             | 24 V               | 48 V  |
|-------------|--------------------|-------|
| C85 Lead    | 7 Ah, 14 Ah, 24 Ah |       |
| C85 Lithium | -                  | 26 Ah |

**> Accessories and spare parts**

|                    |                |
|--------------------|----------------|
| DES COFFRET TCR C7 | Redundancy box |
| PM ENERGO DISPLAY  | Display unit   |
| PM ENERGO MBOARD   | Power board    |

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