

# HE solar charger for Telecom applications

With the MPPT algorithm ensuring close to 100% panel utilization and an efficiency above 97%, the galvanic isolated solar charger sets new standards for renewable power in telecom.

The combination of innovative design, efficiency and reliability makes the Flatpack2 HE SOLAR stand out.



## Flatpack2 48V Solar Charger

48/3200 HE Solar

Doc PEDM0000712842 v00

### APPLICATIONS

#### TELEKOM - WIRELESS

- Radio base stations / Cell sites
- LTE / 4G / WIMAX
- Distributed Antenna Systems
- Microwave
- Broadband

#### TELECOM - FIXED

- Telephony servers / switches
- Fiber Optics / FTTx
- Microwave

#### OTHER

- Rural electrification



Multisite fleet management tool



Flatpack2 hybrid power core



2U PV connection drawer (PN: 354812/390E35481200 & 351355/390E35135500)

### KEY FEATURES

- HIGH EFFICIENCY – 97 %
- MPPT – MAXIMUM POWER POINT TRACKING
- GROUND FAULT DETECTION ON INPUT
- SUPPORTS HIGH STRING VOLTAGE (UP TO 430V) → LOW LOSSES / SMALLER CABLES
- TELECOM SPECIFICATION
- FULLY INTEGRATED IN ELTEK CONTROL SYSTEM
- GLOBAL COMPLIANCE
- VOLTAGE KEYING
- PATENTED HE TECHNOLOGY



12.8kW per 1U

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|                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model                                                                                                                                                                                                                                                                                      | 48/3200 HE SOLAR                                                                                                                                                                                                                                  |
| Part number                                                                                                                                                                                                                                                                                | 241119.650                                                                                                                                                                                                                                        |
| <b>INPUT DATA</b>                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                   |
| Voltage (MPPT range) <sup>1)</sup>                                                                                                                                                                                                                                                         | 100 - 380 V <sub>DC</sub>                                                                                                                                                                                                                         |
| Voltage (operating range)                                                                                                                                                                                                                                                                  | 85 - 430 V <sub>DC</sub>                                                                                                                                                                                                                          |
| Voltage (start-up)                                                                                                                                                                                                                                                                         | 150 V <sub>DC</sub>                                                                                                                                                                                                                               |
| Maximum current                                                                                                                                                                                                                                                                            | 20.3 A <sub>DC</sub>                                                                                                                                                                                                                              |
| Protection                                                                                                                                                                                                                                                                                 | Fuse, varistor for transient protection, reversed polarity, shutdown when V <sub>IN</sub> is too low, earth fault check during start-up                                                                                                           |
| <b>OUTPUT DATA</b>                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                   |
| Voltage (default)                                                                                                                                                                                                                                                                          | 53.5 V <sub>DC</sub>                                                                                                                                                                                                                              |
| Voltage (adjustable range)                                                                                                                                                                                                                                                                 | 42 <sup>2)</sup> - 57.6 V <sub>DC</sub>                                                                                                                                                                                                           |
| Max power, V <sub>IN</sub> ≥ 170 V <sub>DC</sub>                                                                                                                                                                                                                                           | 3200 W                                                                                                                                                                                                                                            |
| Max power, de-rated @V <sub>IN</sub> = 85 V <sub>DC</sub>                                                                                                                                                                                                                                  | 1500 W                                                                                                                                                                                                                                            |
| Max current, @V <sub>OUT</sub> = 48 V <sub>DC</sub>                                                                                                                                                                                                                                        | 66.7 A                                                                                                                                                                                                                                            |
| Current sharing                                                                                                                                                                                                                                                                            | Passive to optimize power available from each string of solar panels                                                                                                                                                                              |
| Static voltage regulation (10-100% load)                                                                                                                                                                                                                                                   | ±0.5% from 10 - 100% load and supplied power not limited by PV panels                                                                                                                                                                             |
| Dynamic voltage regulation                                                                                                                                                                                                                                                                 | ±5.0% for 10-90% or 90-10% load variation, regulation time < 50ms                                                                                                                                                                                 |
| Ripple                                                                                                                                                                                                                                                                                     | < 250 mV <sub>PP</sub> , 30 MHz bandwidth                                                                                                                                                                                                         |
| Protection                                                                                                                                                                                                                                                                                 | Fuse, Overvoltage shutdown, short circuit proof, high temperature, hot plug-in inrush current limiting                                                                                                                                            |
| <b>OTHER SPECIFICATIONS</b>                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                   |
| Peak Efficiency                                                                                                                                                                                                                                                                            | 97 %                                                                                                                                                                                                                                              |
| Isolation                                                                                                                                                                                                                                                                                  | 4.2 kV <sub>DC</sub> – input and output, 2.5 kV <sub>DC</sub> – input earth, 0.5 kV <sub>DC</sub> – output earth                                                                                                                                  |
| Alarms (Red LED)                                                                                                                                                                                                                                                                           | High and low temperature shutdown, Converter Failure, Overvoltage shutdown on output, Fan failure, Low voltage alarm, CAN bus failure                                                                                                             |
| Warnings (Yellow LED)                                                                                                                                                                                                                                                                      | Low input voltage, Converter in power derate mode, Remote current limit activated, Input voltage out of range, flashing at overvoltage                                                                                                            |
| Normal (Green LED)                                                                                                                                                                                                                                                                         | Input and output ok                                                                                                                                                                                                                               |
| MTBF (Telcordia SR-332 Iss.3 Method II Case L1)                                                                                                                                                                                                                                            | 1 440 000 (@ T <sub>ambient</sub> : 25°C)                                                                                                                                                                                                         |
| Operating temperature (5 - 95% RH non-cond.)                                                                                                                                                                                                                                               | -40 - 75°C [-40 - 167°F]                                                                                                                                                                                                                          |
| Max output power de-rates above temp / to                                                                                                                                                                                                                                                  | 45°C [+113°F] / 2400 W                                                                                                                                                                                                                            |
| Storage temperature                                                                                                                                                                                                                                                                        | -40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing                                                                                                                                                                                  |
| Dimensions[WxHxD] / Weight                                                                                                                                                                                                                                                                 | 109 x 41.0 x 327mm [4.25 x 1.61 x 13"] / < 2 kg [4.4lbs]                                                                                                                                                                                          |
| <b>DESIGN STANDARDS</b>                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                   |
| Electrical safety                                                                                                                                                                                                                                                                          | IEC/EN 62109-1:2010/-2:2011, EN 62368-1:2020+A11:2020, IEC 62368-1:2018 UL 62368-1:2019, IEC 60950-1:2013                                                                                                                                         |
| EMC                                                                                                                                                                                                                                                                                        | EN 61000-6-1:2016, -6-2:2016, -6-3:2007 + A1:2011, -6-4:2007 + A1:2011, IEC 61000-6-5:2015, EN 300 386:v2.1.1, FCC CFR 47 Part 15:2013                                                                                                            |
| Environment                                                                                                                                                                                                                                                                                | ETSI EN 300 019: 2-1 (Class 1.2) & 2-2 (Class 2.3)<br>2011/65/EU (RoHS) & 2012/19/EU (WEEE)<br>Normal operating conditions as per IEC 62040-5-3:2016 clause 4.2. Other operating conditions as per IEC 62040-5-3:2016 clause 4.3, must be advised |
| <sup>1)</sup> At nominal output voltages. MPPT will operate down to 100V, but the maximum input current limitation will de-rate maximum output power<br><sup>2)</sup> Stand-by / test operation (V <sub>OUT</sub> < 48 V <sub>DC</sub> ) limited for V <sub>IN</sub> > 250 V <sub>DC</sub> |                                                                                                                                                                                                                                                   |

Specifications are subject to change without notice

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