### Technical specifications

#### A. Input
- **Solarpanel:**
  - \( W_{\text{max}} = 100 \text{W} \)
  - \( V_{\text{max}} = 25 \text{V} \)
  - \( I_{\text{max}} = 6 \text{A} \)
- **Battery:**
  - \( V_{\text{C20}} = 9-200 \text{Ah} \)
  - \( V_{\text{max}} = 12 \text{V} \)

#### B. Output
- **Lamp 1+2:**
  - Voltage = Battery voltage - 0,5V
  - \( I_{\text{max}} = 1 \text{A (each output)} \)
  - On each lamp out up to 3 lamps can be connected (totally 6 lamps)
- **Carplug:**
  - Voltage = Battery voltage - 0,5V
  - \( I_{\text{max}} = 5 \text{A} \)
- **USB Output:**
  - Voltage selection via internal Jumper
  - \( U_{\text{out}} = 5,3 \text{V or 6V or 8V} \)
  - \( I_{\text{max}} = 1 \text{A / 1 A / 0,5 A} \)
- **DC/DC Out:**
  - 5 different voltages; selection via internal Jumper

#### C. Functions
- Prepayment function
- Undervoltage protection
- Overload protection
- Charge indicator
- Resttime forecast till Battery is recharged in normally one day
- Resttime forecast till Battery down and automatic switch off
- Battery indicator in percent
- Powerindicator in Watt
Design and Assembling

- Developed and designed in Germany

End user Microfinance ("Pay-to-Own-Technology")

We support solar end user Microfinance by our intelligent CODE payment technology:

- No payment = no CODE
- No CODE = system stops automatically after end of current paid time period.

Our system is simple, durable, easy - and works in two options:

- Option 1: Payment via mobile phone
- Option 2: Payment in cash

Our end user finance system consists of two elements:

- SunControl Home: intelligent Pay-to-Own Charge controller
- M-Solar©: innovative software for easy management of customers, loans and payments (see next page)

Our experience with this payment technology since 2005 ensures that you get a reliable and professional support for your end user Microfinance.
Off-grid solar solutions remain the most ideal and cost-effective energy solutions for such households, majority poor and located in remote and sparsely populated regions. However, penetration of off-grid solar in rural Kenya is barely 2% and key barriers remain, notably market spoilage from proliferation of poor-quality products, poor distribution and service network and lack of access to affordable end-user finance.

**Payment convinient "as sending a text message"**

To make a difference, SunTransfer Kenya has developed and deployed an innovative mobile-payment solution known as M-SOLAR®. This “pay-to-own” end-user finance model will make buying and owning a quality solar system as simple and convenient as “sending a text message.” The software is made for use with payment charge controller Sun-Control (designed by SunTransfer).

Once the solar system with payment charge controller Sun-Control is installed by technicians of SunTransfer Kenya, the necessary software is also loaded on site, enabling a typical client to send their money via mobile to SunTransfer Kenya. On receiving the money, M-SOLAR immediately sends back an sms (short message text) with a secret code to the client’s mobile phone. The client in turn loads the code into their solar system enabling them to use system for the duration of the payment, typically 31 days. After this period, the client will top up the payment again via M-SOLAR. If the monthly payment is not made when due, the code system will automatically switch off the loads and only unlock when the due payment is made. However, once all the payments are made, the system will unlock permanently, giving the BOP free and clean energy over the next 20 years!

To deliver the M-SOLAR end-user finance service, loads has partnered with M-PESA of Safaricom, the largest mobile money transfer network in Kenya, with over 20,000 registered subscribers and widest geographical coverage nationally.

**Benefits for better customer service**

To the BOP end-users, the M-SOLAR has delivered very many practical benefits: convenient 24-hr payment platform via mobile phones, low transaction cost as the end-user does not require to travel long distance to make payment and access their credit codes, thus huge savings on travel cost and time. Moreover, clients can also check loan balances on the phones by sending a simple text message to the M-SOLAR customer service number. This service enables each customer to schedule and track their payments accordingly.

To SunTransfer Kenya, M-SOLAR has greatly improved operational efficiency, improved customer experience while growing capacity for better customer service and ability to scale.

**Distribution network for local customer service**

Delivery of M-SOLAR service would not have been possible without SunTransfer Kenya’s unique rural service network of Solar Centers, each equipped with 4-5 well trained solar technicians. Currently SunTransfer Kenya has a portfolio of five Solar Centers in Eastern and Nairobi regions and proposes to open 5 more centers by the end of the year.

The unique blend of M-SOLAR, a low-cost and affordable end-user finance platform, and the growing network of Solar Centers strategically located in rural areas closes to our target off-grid markets, makes SunTransfer Kenya’s business model well-thought out and creatively designed to effectively address the key challenges of end-user finance and poor distribution channels limiting the growth of the substantial off-grid solar markets in Africa.

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