CONTENTS

1. LIBRA ENERGY

2. INVERTERS

   Omnik
   Goodwe
   Chint
   Mastervolt
   Solaredge

3. MONITORING

   Libra Solar Dude & Solar Babe

4. SOLAR MODULES

   Canadian Solar
   Solsonica
   Hyundai

5. MOUNTING SYSTEMS

   Residential
      • pitched roof
      • flat roof
   Commercial
      • pitched roof
      • flat roof

6. COMPONENTS

   Cable
   Connectors
   Power management and metering
1. LIBRA ENERGY

Since our foundation in 2007 we at Libra Energy have always focused on customer needs and requirements. Putting our international business experience in off grid and grid connected solar business at your service has made it possible for us to reach a leading position being a specialized PV distributor.

VISION
We are convinced that solar energy, as an inexhaustible renewable power source can globally balance the ever growing demand for energy with economical and socially responsible ways of energy production.

MISSION
We want to make solar energy accessible for everybody by offering high quality tailor-made solar systems at the best price and performance ratio and with the best possible service.

VALUES
It is our mutual and natural drive to excel as a team in building sustainable business relationships, creating maximum customer satisfaction and optimizing our service through innovation and continuous improving our services.

CUSTOMER SATISFACTION
We put a lot of effort in keeping our customers satisfied. It is extremely important to us that we build a close contact with our customers aiming to service them to their expectations. We see that efficient and reliable communications are key to make this work. We put a lot of effort in our system design, quotations and order processing to reduce mistakes to an absolute minimum. We pay a lot of attention in planning, preparing consignments and shipping. It is our aim to keep you posted off all key aspects all the time. Should despite all our careful quality control go something wrong we do everything possible to put it right. It is important to us we keep our promises.

INNOVATION
We have built a gateway from customers to manufacturers and vice versa. We have put a lot of effort in establishing sound and long-term relationships with our customers and supply partners. Through product training and technical support we have made solar grid connected more accessible for installers, by fully focusing on always realizing the best proposal on price / quality ratio we contributed in growing the PV market as a true and valid state of the art renewable alternative for fossil fuels.

TECHNICAL EXPERTISE
We have a background of more than 20 years in the solar business. We have nothing against shifting boxes, but we do know what is in the boxes we shift. We only select products for our portfolio that fully meet our high quality standards. We test all products in our own test lab. We offer a full after sales service for all our product brands.

INTERNATIONAL LOGISTICAL HUB
We have a modern and well-equipped central warehouse serving the European markets located in Castricum close to the port of Rotterdam and Schiphol airport. We have warehouse facilities in Doncaster, England and Thomaston (ME), USA. We believe in local presence and support. Our AFAS ERP system fully integrates all our financial and logistical flows in a highly comprehensive and efficient way.

CO₂ NEUTRAL
As from January 2013 we fully operate our company carbon footprint neutral. After getting ISO14064-1 certified in the 4th quarter of 2012 we committed ourselves to achieve this and to stick to it.

LIBRA SERVICES
We offer you:
- support in system design tools & calculations
- performance simulations / yield calculations
- inverter string lay-outs
- block diagrams
- mounting system lay out and ballast calculations
- project management & system commissioning
- monitoring and control services
- service and maintenance contracts
- after sales service support
2. GRID INVERTERS

OMNIK NEW ENERGY

String Inverters
Omniksol Single Phase Series with models from 1 to 5kW. The Three Phase Series consists of 13, 17 and 20kW models. All units available with and without integrated DC Switch. All units are supplied with FREE WI-FI. This allows FREE MONITORING on end-user level, installer level and distributor level. All models can be installed indoor and outdoor, IP65 protection degree. The 3, 4 and 5kW units all have double and fully independent highly efficient MPP Trackers.

Micro Inverters
Omniksol-M248. In PV systems with Micro inverters each single modules has its own dedicated inverter. Micro inverters guarantee the maximum energy production on individual module level. No weak links influence the performance of the entire string. The power reduction caused by partly shade, dirt and debris has only a limited impact on the total system performance. The M248 can be used for modules up to 300Wp. Suited for 60 cells and 72 cells modules.

GOODWE

GoodWe is a highly professional all round inverter manufacturer, covering string technology as well as central inverter technology. With a large team of experienced and highly skilled engineers a high quality range of inverters, including full monitoring options and useful add ons has been realized. Through constant innovation GoodWe intends to maintain its leading market position. GoodWe provides two complete ranges single phase inverters, one single MPPT and one double MPPT range from 1 to 5kW. Extremely successful is the range of Smart Three Phase Inverters consisting of a 4kW a 5kW and 6kW ultra-compact model with double MPPT. The range of three phase inverters is completed with several models rating from 10 to 20kW. The DI Series offer a galvanic isolated solution for different modules technologies.

CHINT

CPS SC Series from 1.5kW up to 20kW models. By far the most competitively priced inverter range. Highly reliable. We have an installed based over 60Mw. Libra solar dude available for basic wireless monitoring.

Libra Wi-Fi monitoring option available.
MASTERVOLT
We supply single phase Soladin, Sunmaster ES-series and three phase CS-TL-series string inverters. High performance, high yield. Transformerless and high frequency transformer concepts. All ES models have integrated DC switch. CS-TL series are offered with external DC Switch option, fuses and over voltage protection options. Libra Wi-Fi monitoring option available.

SOLAREDGE
The SolarEdge power optimizer is a DC/DC converter which is connected by installers to each PV module or embedded by module manufacturers, replacing the traditional solar junction box. The SolarEdge power optimizers increase energy output from PV systems by constantly tracking the maximum power point (MPPT) of each module individually. Furthermore, the power optimizers monitor the performance of each module and communicate performance data to the SolarEdge monitoring portal for enhanced, cost-effective module-level maintenance. Each power optimizer is equipped with the unique SafeDC™ feature which automatically shuts down modules’ DC voltage whenever the inverter or grid power is shut down. The MPPT per module allows for flexible installation design with multiple orientations, tilts and module types in the same string. When working with SolarEdge Inverters, SolarEdge power optimizers automatically maintain a fixed string voltage, allowing installers even greater flexibility with longer strings and strings of different lengths in order to design optimal PV systems. Alternatively, the new independent optimization (IndOP™) technology, allows power optimizers to be installed without the need for additional interface hardware and to operate directly with any inverter. The SolarEdge power optimizers are compatible with c-Si and thin-film modules and have a 25 year warranty.

LIBRA SOLAR DUDE & SOLAR BABE SERIES
Libra Energy launches a complete range of data monitoring and logging devices for PV installations

Solar Dude
- High End Data-logger with full color touch screen
- State of the art design for wall or desk top mounting
- Clear read out of solar system yield
- Diagram showing daily, weekly and total yield
- Wireless connection between display and measuring unit
- Independent of brand or model of grid inverter (single phase)

Solar Babe
- Easy-to-Install Data-logger.
- Current clamp
- 50 meter between display and transmitter
- Two year data storage
- Display runs on batteries
- Suited for wall and desk top mounting
4. SOLAR MODULES

**CANADIAN**

Canadian Solar Inc. (NASDAQ: CSIQ) is a top 5 Global Module Supplier in 2011. As a leading vertically integrated provider of ingots, wafers, solar cells, solar modules, solar power systems and specialized solar products, Canadian Solar delivers uncompromising value to its customers across the globe. Customers trust Canadian Solar’s world-renowned technical expertise, corporate financial strength and commitment to sustainable value. Customers choose Canadian Solar because they manufacture high-quality solar PV products with marketleading cost structures, delivering the best value possible. We are authorized reseller for Canadian and have therefore the official distributor status in The United Kingdom and the Benelux countries.

**SOLSONICA**

Solsonica originates from the silicon industry. Owned 100% by EEMS Group, spin-off of Texas Instruments in 1994 and worldwide leader in assembling and testing semi-conductor memories, supplying services for IT leading brands like IBM, MICRON and STM. The start up of a high level production plant including solar cells manufacturing lines was only a logical step entering the international PV markets. Being the largest Italian manufacturer of solar modules Solsonica supplies a complete range of modules and special production series for laminates, BIPV solutions and encapsulated modules. Solsonica modules rank amongst the highest production per Wp installed. Supplied over half a Gigawatt for countless European on-roof systems and PV plants for residential and commercial applications.

**HYUNDAI GREEN ENERGY DIVISION**

This Division produces Solar Power systems, Wind turbines and Energy Storage systems. Hyundai Heavy Industries has a total production capacity of 600Mw in Solar Modules. The black/black module range has proven to be highly efficient and produce a maximum of solar power. The appearance is very popular as the module is really black and the cells are dark black as well.
**AMERISOLAR**

Amerisolar has 16-year experience in manufacturing and quality control, and our production capacity is 500MW in 2012. Based on the technical cooperation with German and US Institutes, Amerisolar modules have been certified by UL, TUV, KTL, MCS, CEC, ISO9001, ISO14001, OHSMS18001 and China “Golden Sun”. Best Warranty: 12 year Quality warranty, and 12 and 30 year product power output are guaranteed.

With a brand new factory in Taiwan, Amerisolar will be able to maintain its products top quality, without changing prices, not being hit by the anti-dumping duty imposed on the Chinese products by the European Union.

**SUNRISE**

Sunrise is an international honored manufacturer of mono crystalline and multi crystalline photovoltaic modules with 500MW production capacity and a wide variety of modules are available in high performance and quality.

Sunrise recently opened their brand new Malaysia factory and started production as from July 15th.

---

**5. MOUNTING SYSTEMS**

**CLENERGY**

Clenergy’s PV-ezRack SolarRoof Pro is a roof-mounting solution suitable for most types of pitched and flat roofs. Using our innovative PV-ezRack Rail, Z-modules and roof hooks, PV-ezRack SolarRoof Pro is one of the most versatile rooftop solutions in the world, delivering a safe and cost-effective solution to installers.

**Key Features**

- Easy Installation: the versatile rail, Z-module and splice kit eliminates make SolarRoof a safe and cost effective PV mounting system.
- Versatile Application: with a full range of roof hooks, PV-ezRack SolarRoof Pro is suitable for most roofing types, including pitched tile roofs, metal roofs, concrete roofs and even slate roofs.
- Great Compatibility: designed as a universal PV mounting system, SolarRoof Pro is compatible with most of the major framed and frameless PV modules on the market.
- High Quality: strict quality control over materials and finished products ensures optimum strength and long life for your installation.
- 10 Year Warranty
With the ValkBox, Van der Valk Solar Systems has developed a solar-mounting system which puts comfort first. Logistical simplicity, simplicity in ordering and easy to design and mount for installers. The ValkBox is suitable for use on residential roofs and for use in small commercial on roof systems. There are three versions. For pitched roofs there are the ValkBox 1-Base set and the ValkBox 2-Extension set and for flat roofs there is the ValkBox 3-Universal set. The ValkBox offers an enormous logistical advantage. Installers only need to keep three products in stock. You have the right materials for almost any kind of system easily within reach.

The ValkBox 3 for flat roofs
The ValkBox 3-Universal set contains all of the mounting materials required to install one solar panel (landscape) on a flat roof. Incl. 2 aluminum A-frames with a tilt angle of 20 degrees (anodized for a long lifespan) and 4 special rubber tile supports for optimal pressure distribution.

The ValkBox 3 is intended to mount all modules individually (also the ballast is calculated in that way). There is no need to interconnect any parts when the system is extended. A clever hinge system makes it possible to lift the panel, so it is easy to place ballast tiles (300 x 300 mm). To calculate the correct ballasting, a clear ballast table with regional wind and building height variables is included.

6. COMPONENTS

**SOLAR CABLE**
4 and 6 mm² - 100 meter or 500 meter drum

**CONNECTORS**
male 4-6mm & female 4-6mm

**HOOKSTOP**
Put an end to broken tiles! We all know how easily Plain or Rosemary tiles break during or even after solar PV installation. Now, with NEW HookStop™ you can stand on the roof hooks or mounting rail without breaking the tiles beneath.

**APEX VOLTAGE OPTIMISATION**
Typically the incoming voltage to your property will vary between 216v and 253v as agreed with the current European Legislation. All domestic electrical equipment is designed to work within a range of 207v and 253v. But critically the optimum and most efficient supply voltage for these appliances is 220. When the supply voltage exceeds 220V waste is generated, in both heat and vibration significantly reducing the life span of the equipment...

**THE SOLIC 200**
The SOLIC 200 automatically converts energy generated by your existing PV panels into hot water by diverting excess solar power to the immersion heater before it's exported to the national grid. Simple to use and maintenance free, the SOLIC 200 is self contained, easy to install and can save you hundreds of pounds over the course of a year.

**SALZER**
Full range of German quality manufactured AC & DC Isolators available, including the NEW D200 True DC range) IEC 60947-3 and VDE 0660 Compliant

**SINGLE AND 3 PHASE GENERATION METERS**
CO₂ NEUTRAL
Libra energy becomes CO₂ neutral.
Recently we have achieved ISO 14064-1 certification.