

Power-One Aurora Trio 10KW PV Inverter

Reverse Costing Analysis by System Plus Consulting – August 2012

Physical Analysis of the Device Step by Step disassembly

Cost of Manufacturing & Estimation of Selling Price

System Plus Consulting is proud to publish the reverse costing report of the Aurora Trio solar inverter PVI-10.0-TL supplied by Power-One, the second largest PV inverter manufacturer.

Rated A+ by Photon International, the PVI-10.0-TL is a 10KW, transformerless inverter with two independent MPPTs and efficiency ratings of up to 97.8%. The system uses film capacitors instead of electrolytic capacitors. This change allows a longer product lifetime.

Based on a complete teardown analysis, the report provides an estimation of the production cost as well as the selling price of the product.

This reverse costing report contains:

- Detailed photos
- Material analysis
- Manufacturing process flow
- In-depth economical analysis
- Manufacturing cost breakdown
- Selling price estimation



TABLE OF CONTENTS

<p>1. Overview / Introduction 3</p> <p>Introduction Company Profile: Power-One Main Features Specifications overview of the inverter The course of the analysis</p>	<p>3. BOM Cost 98</p> <p>Assessing the BOM Estimation of the cost of the Packaging & Accessories Estimation of the cost of the Housing & Mechanical Parts Estimation of the cost of the Electronic Boards Material cost breakdown</p>
<p>2. Physical Analysis 12</p> <p>Views and dimensions of the packaging Packaging Overview Accessories and Documentations Views and dimensions of the inverter External Interfaces Inverter Opening Inverter Disassembly Electronic Boards Dimensions Electronic Boards – Top Side – Global View Electronic Boards – Top Side – High Resolution Photo Electronic Boards – Top Side – Main Components Markings Electronic Boards – Top Side – Main Components Identification Electronic Boards – Top Side – Other Components Electronic Boards – Bottom Side – High Resolution Photo</p>	<p>4. Added Value Cost 114</p> <p>Electronic Boards Manufacturing Flow Electronic Boards Hourly Rates and Cadencies Details of the Electronics Board AV Cost Details of the System Assembly AV Cost Details of the Final Functional Test AV Cost Details of the Packaging Assembly AV Cost Added Value cost breakdown</p> <p>5. Estimation of the selling price 132</p> <p>Manufacturing Cost Breakdown Estimation of the Selling Price Functional Cost Breakdown</p> <p>6. Conclusion 137</p>

ORDER FORM

Please enter my order for Power-One Aurora 10KW Inverter Reverse Costing Analysis :

Ref.: SP12103

Corporate license price:

EURO 3,490*

*For price in dollars please use the day's exchange rate

*All reports are delivered electronically in pdf format

*For French customer, add 20 % for VAT

SHIP TO

Name (Mr/Ms/Dr/Pr):

.....
Job Title:

.....
Company:

.....
Address:

.....
City: State:

.....
Postcode/Zip:

.....
Country*:

.....
*VAT ID Number for EU members:

.....
Tel:

.....
Email:

.....
Date:

.....
Signature :

PAYMENT

DELIVERY on receipt of payment:



By credit card:

Number: _____ Expiration date: __/__/__

Card Verification Value: _____

By bank transfer:

HSBC – CAE- Le Terminal -2 rue du Charron- 44800 St Herblain France
BIC code : CCFRFRPP

In EUR

Bank code : 30056 - Branch code : 00955 - Account : 09550003234
IBAN : FR76 3005 6009 5509 5500 0323 439

In USD

Bank code : 30056 - Branch code : 00955 - Account : 09550003247
IBAN : FR76 3005 6009 5509 5500 0324 797

Return order by:

FAX: +33 (0)253 55 10 59

MAIL: SYSTEM PLUS CONSULTING

21 rue La Noue Bras de Fer

44200 Nantes – France

Contact:

sales@systemplus.fr - Tel: +33 (0)240 18 09 16

Our prices are subject to change.
Please check our new releases and price changes on www.systemplus.fr

BILLING CONTACT

Name:

Email:

Phone:

ABOUT SYSTEM PLUS CONSULTING

System Plus Consulting is specialized in the **cost analysis** of electronics from **semiconductor devices** to **electronic systems**. Around this main line System Plus Consulting developed a complete range of services and costing tools to provide **in-depth production cost studies** and estimation of the **objective selling price** of the product.

COSTING SERVICES

- ✓ On demand **Reverse Costing studies** are performed on ICs, ASICs, MEMs, Power Devices, ECUs, electronic boards and full electronic systems
- ✓ The **catalog of available reports** includes cost analyzes on MEMS, Electronic components and Electronic systems

All these studies are performed using in-house developed costing tools and their technological databases.

COSTING TOOLS

« Purchaser » tools

- ✓ IC Price+ to estimate the cost of any integrated circuit
- ✓ Power Price+ to estimate the cost of any power component or module
- ✓ PCB Price+ for printed circuit boards
- ✓ SYS.Cost a costing tool for electronic boards and systems

Cost Simulation Tools, process flow based

- ✓ MEMS CoSim+
- ✓ LED CoSim+
- ✓ Power CoSim+
- ✓ TSV CoSim+ (thru silicon vias)
- ✓ Sapphire CoSim+
- ✓ PV CoSim+ (photovoltaic)
- ✓ Other costing models can be developed according to customer specification

TERMS AND CONDITIONS OF SALES

1. INTRODUCTION

The present terms and conditions apply to the offers, sales and deliveries of services managed by System Plus Consulting except in the case of a particular written agreement.

Buyer must note that placing an order means an agreement without any restriction with these terms and conditions.

2. PRICES

Prices of the purchased services are those which are in force on the date the order is placed. Prices are in Euros and worked out without taxes. Consequently, the taxes and possible added costs agreed when the order is placed will be charged on these initial prices.

System Plus Consulting may change its prices whenever the company thinks it necessary. However, the company commits itself in invoicing at the prices in force on the date the order is placed.

3. REBATES and DISCOUNTS

The quoted prices already include the rebates and discounts that System Plus Consulting could have granted according to the number of orders placed by the Buyer, or other specific conditions. No discount is granted in case of early payment.

4. TERMS OF PAYMENT

System Plus Consulting delivered services are to be paid within 30 days end of month by bank transfer except in the case of a particular written agreement.

If the payment does not reach System Plus Consulting on the deadline, the Buyer has to pay System Plus Consulting a penalty for late payment the amount of which is three times the legal interest rate. The legal interest rate is the current one on the delivery date. This penalty is worked out on the unpaid invoice amount, starting from the invoice deadline. This penalty is sent without previous notice.

When payment terms are over 30 days end of month, the Buyer has to pay a deposit which amount is 10% of the total invoice amount when placing his order.

5. OWNERSHIP

System Plus Consulting remains sole owner of the delivered services until total payment of the invoice.

6. DELIVERIES

The delivery schedule on the purchase order is given for information only and cannot be strictly guaranteed. Consequently any reasonable delay in the delivery of services will not allow the buyer to claim for damages or to cancel the order.

7. ENTRUSTED GOODS SHIPMENT

The transport costs and risks are fully born by the Buyer. Should the customer wish to ensure the goods against lost or damage on the base of their real value, he must imperatively point it out to System Plus Consulting when the shipment takes place. Without any specific requirement, insurance terms for the return of goods will be the carrier current ones (reimbursement based on good weight instead of the real value).

8. FORCE MAJEURE

System Plus Consulting responsibility will not be involved in non execution or late delivery of one of its duties described in the current terms and conditions if these are the result of a force majeure case. Therefore, the force majeure includes all external event unpredictable and irresistible as defined by the article 1148 of the French Code Civil?

9. CONFIDENTIALITY

As a rule, all information handed by customers to system Plus Consulting are considered as strictly confidential.

A non-disclosure agreement can be signed on demand.

10. RESPONSABILITY LIMITATION

The Buyer is responsible for the use and interpretations he makes of the reports delivered by System Plus Consulting. Consequently, System Plus Consulting responsibility can in no case be called into question for any direct or indirect damage, financial or otherwise, that may result from the use of the results of our analysis or results obtained using one of our costing tools.

11. APPLICABLE LAW

Any dispute that may arise about the interpretation or execution of the current terms and conditions shall be resolved applying the French law.

If the dispute cannot be settled out-of-court, the competent Court will be the Tribunal de Commerce de Nantes.