

UPS systems for power quality solutions

Technical Note no. 7

**Electrical input performance for UPS
type SitePro 400 - 500 kVA with input
filter 11th and 13th harmonic.**



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Preface

“Technical note” is a collection of technical documents focused on the applications of *GE Digital Energy SA* UPS system.

These documents are realized for salesmen, engineers, technicians and for all the people who are looking in more details the information given on the product descriptions.

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1 Introduction

The input filter for 11th and 13th harmonics is a passive filter realized by coils and capacitances, designed to compensate the residual current harmonics generated by the UPS rectifier in 12 pulse configuration (with or without galvanic separation).

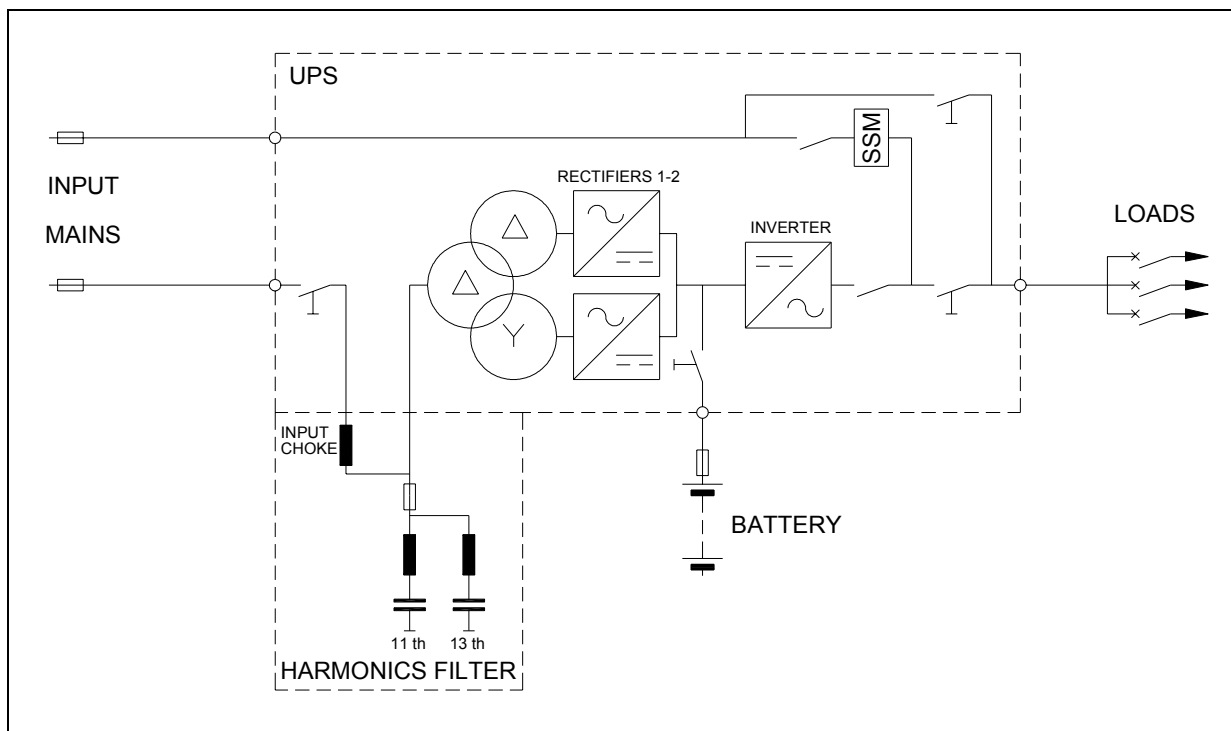
The filter is design to operate constantly connected to the input mains, independently to the UPS load level.

2 Typical performance

The filter for 11th and 13th harmonic are design to perform the following UPS input data:

- THDI (Total Current Harmonic Distortion) with 12 pulse rectifier: **<5%**
- Power factor correction at 100% load and max power factor: **> 0.85 lagging**

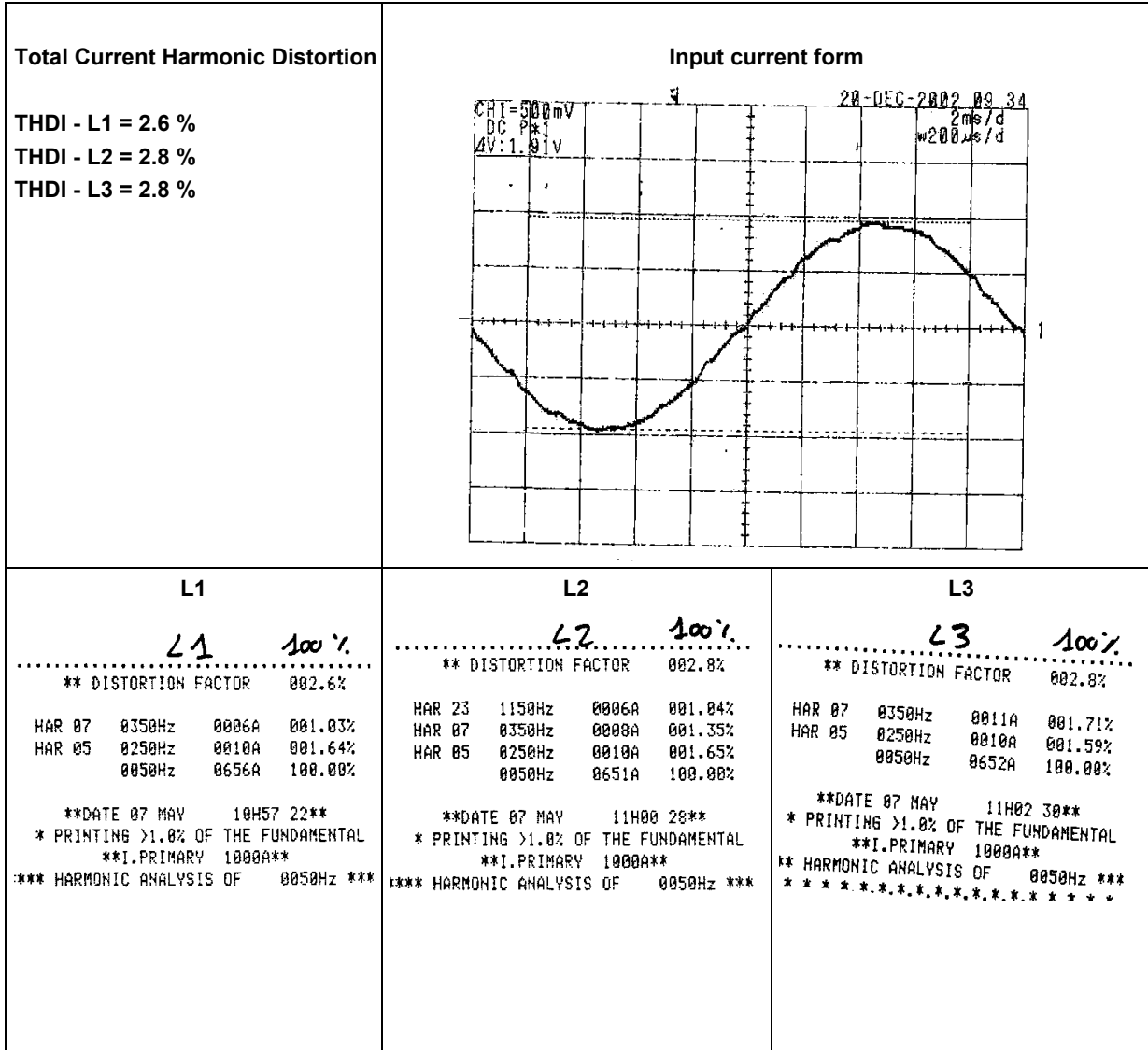
3 Schematic diagram





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4 Factory measurement on SitePro 400 with filter and 100% load

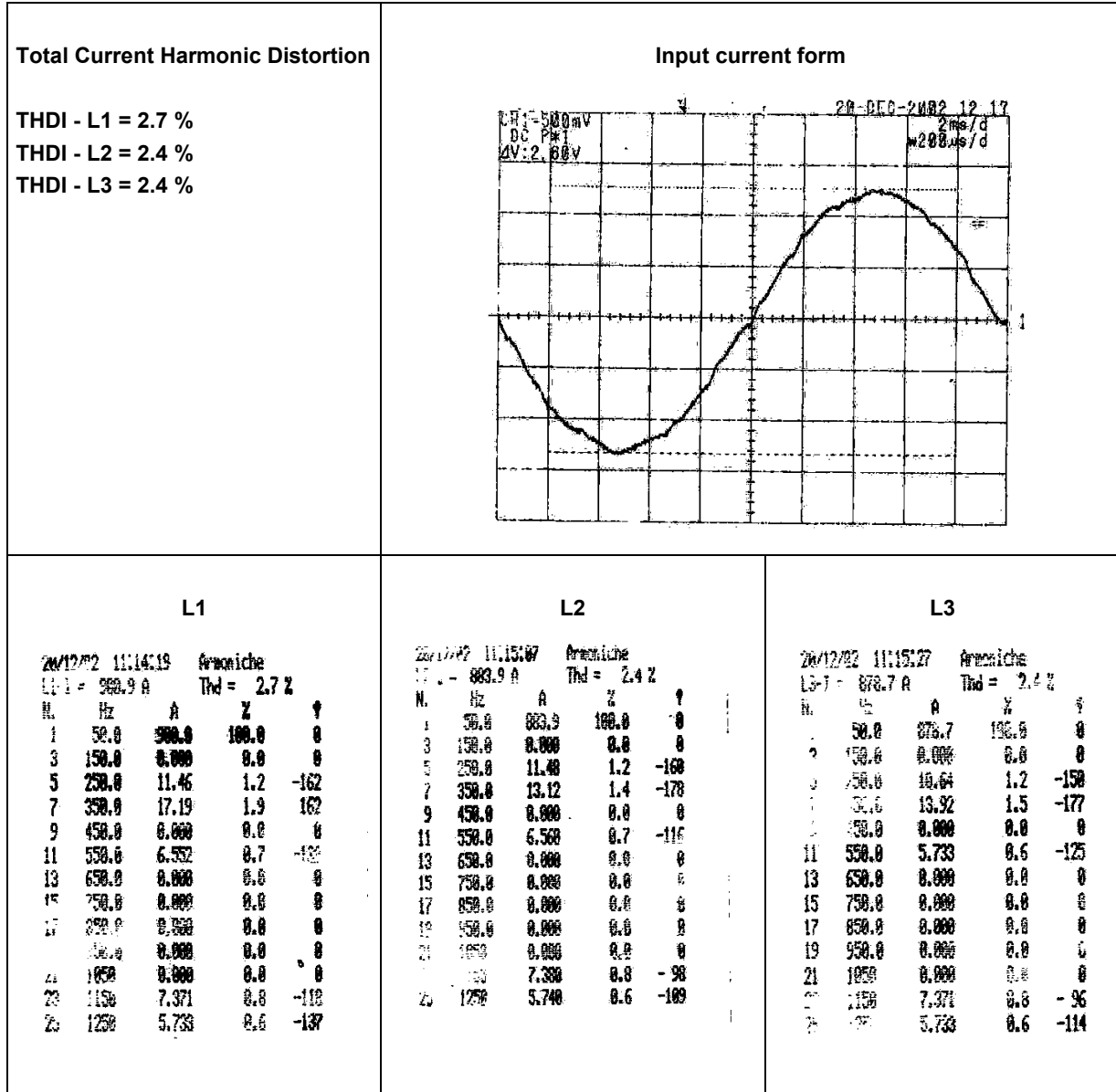


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5 Factory measurement on SitePro 500 with filter and 100% load



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6 Conclusion

The "input filter for 11th and 13th harmonic," is an high performance filter. Nevertheless it must be considered that the UPS input THDI values are related to the input mains impedance (input transformer short circuit voltage, cables length and disposition, etc.); therefore even if in the practical application the results can be lower than the specified data, for a proper guaranteed data the value **THDI < 5** shall be considered.