AVALON

COMPANY PROFILE

(2020)

We are ONE ON ONE with VOLTAGE

© Created & Designed by Avalon Partners – 2020 January

PRESENTATION AGENDA

01 Company Introduction

02 Our Services

03 Our products

04 Case studies

05 Portfolio & Albums

HELLO & WELCOME!

In this presentation, I will be setting forth my company slideshow hoping to make our business partnership certain.

NIKOLA LAKETIC
CEO

EXECUTIVE SUMMARY

Avalon Partners is providing increased profitability to industrial customers by: reducing electricity consumption and losses, safeguarding stable voltage conditions for heavy duty loads, minimizing load impact to the utility grid, as well as deffering unnecessary retrofits and investments into new power installations.

VISION & MISSION

Using our knowledge and experience, we provide custom made PQ solutions that perfectly fit particular issue, so that the investment is just right for the amplitude of the problem.

IMPACT

Many power quality problems are actually not solved, but overcame by heavy investments into new installations or even heavy machinery itself. Hudge portion of PQ problems is actually solvable and we have the required know-how.

BUSINESS MODELS

Our team of experienced proffessionals shall perform the due diligence, gather all the available data and performi high accuracy measurements in your grid. Than we'll analyse the data, find the root cause of a problem and propose the solution that is a perfect fit.

OUR CUSTOMERS

Our customers' base comprise eminent global producers in heavy and oil industry

OUR CUSTOMERS

Our customers' base comprise eminent global producers in heavy and oil industry

COMPANY VISION AND MISSION

OUR VISION

Avalon Partners is global supplier of innovative technical solutions that provide future generations a secure energy efficiency with guaranteed preservation of natural resources.

OUR MISSION

We provide most innovative and reliable technical solutions and products for improvement of electrical-energy efficiency and power quality for industrial users in low- and medium-voltage, that secures for its customers: an increase in utilisation degree of energy and machinery, fast return on investments and increase in profits.

“ONE ON ONE WITH VOLTAGE.”

Our slogan is perfectly in line with our vision, mission, abilities and core values.

OUR ABBILITIES

The majority of our customers praize us for following traits

EXPERTIZE

Professional expertise, experience and engineering knowledge is what we are recommended for for more than two decades of work.

CREATIVITY

Root cause analysis, innovative solutions and implementation of optimal and tailor-made technical solutions had recommended us to the market as creative leaders that are setting new standards.

SPEED OF RESPONSE

Speed of response to first call, short lead time to on-site visit, measurement, problem analysis, as well as shortest possible design and implementation time of optimal technical solution is our pledge for fast return of investment and profit increase of our customers.

OUR CORE VALUES

Our values define our approach to challenges.

BOLDNESS

We had courage to accept solving even most daring power quality problems. After 25 years of experience and daring approach, we are recognised as “task force” to whom every problem is just another new solvable challenge.

DEDICATION

We are focused to the root cause analysis of power quality problems and until we do not come to a dedicated solution, the best and optimal one for particular customer - we do not settle down.

CORDIALITY

We are bringing our minds into our job, but also our harts and souls. We proved ourselves with cordiality and our former clients became our present and future friends.

“

SUCCESS DOESN’T JUST COME AND FIND YOU, YOU HAVE TO GO OUT AND GET IT.

”

WILLIAM PATTERSON

OUR SERVICES

Our core competence is power quality experience and knowledge

POWER QUALITY MEASUREMENT AND MONITORING

No missed events

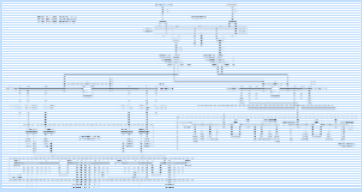
Portable or permanent PQ measurement with state-of-the-art recorders, with no missed events, capture transients at maximal resolution regardless of duration

POWER QUALITY COMPLIANCE

IEC 61000 compliance

Power Qualitiy compliance for PCC, loads, industrial grids; helping in disputes with equipment manufacturers or utilities

GRID MODELLING



Digital model of your grid

Once your grid is digitally modelled, we can run variety of what-if scenarios, contingency analysis, optimize power flow or verify protection relaly settings

OUR FEATURED SERVICE

Combining strengths and advantages of our company we can solve your power quality problem

SOLUTION

Once we find the root cause, we can come out with perfectly suited solution that accurately and reliably solves the problem, spot-on.

ANALYSIS

Once we have all the data, our professional and experienced examiners dig deep into the roots of the problem.

MEASUREMENT

We perform high accuracy, high sampling rate measurements and we guarantee all the disturbances, transients and variations are captured at maximal resolution, regardless of recording length.

SERVICE PROCESS CHART

We always perform the same steps in every project

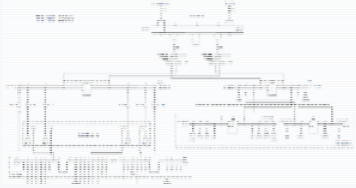
MEASURE

We measure PQ phenomenae with state-of-the art, class A recorders, that guraranty high accuracy and no missed events.

ANALYSE

Our team of experienced engineers and professionals will work on finding and identifying a root cause.

MODELLING & SCENARIO TESTING

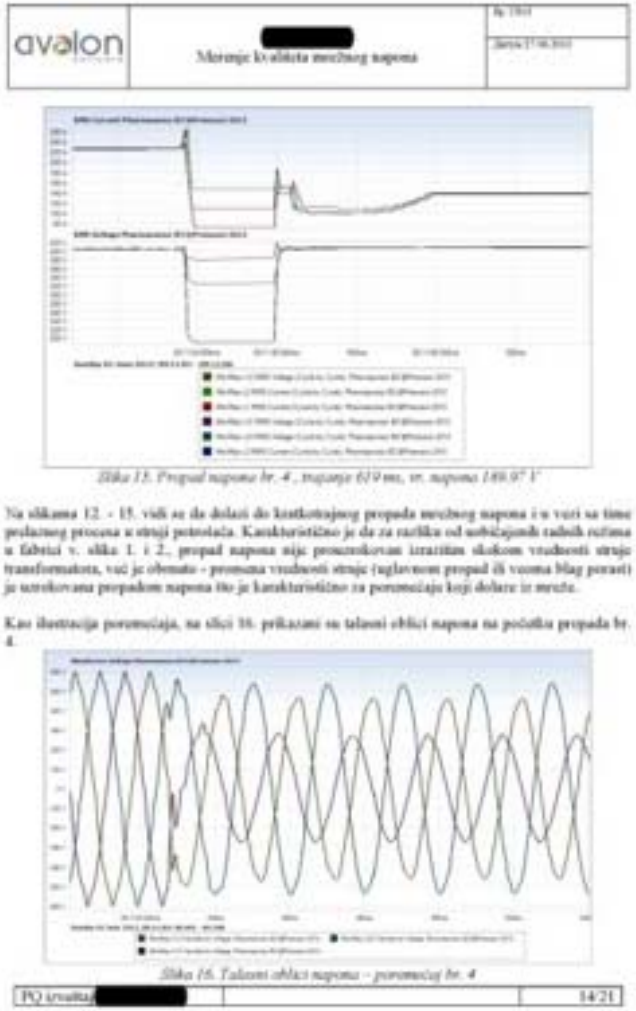


We shall build a digital model of your grid with parameters optimised to mathch the measured data. Than we'll test impact of possible solutions.

SOLUTION

Once the optimal solution is singled out, we shall supply the full specifications to you for further implementation.

01 → 02 → 03 → 04



avalon

[redacted]

Mjerenje kvaliteta mrežnog napona

Slika 15. Prepad napona br. 4 , trajanje 619 ms, vr. napona 189.9° V

Na slikama 12. - 15. vidi se da dolazi do kratkotrajnog propada mrežnog napona i u vezi sa time prelaznog procesa u struji potrošača. Karakteristično je da za razlika od uobičajenih radnih ružima u fabrici v. slika 1. i 2., prepad napona nije prouzrokovan izraženim skokom vrednosti struje transformatora, već je obrnuto - promena vrednosti struje (uglavnom prepad ili vrlo blag porast) je uzrokovana prepadom napona tko je karakteristično za poremećaje koji dolaze iz mreže.

Kao ilustracija poremećaja, na slici 16. prikazani su talasni oblici napona na početku propada br. 4.

Slika 16. Talasni oblici napona - poremećaj br. 4

PQ izvještaj [redacted] 14/21

IMPORTANT POINT IN OUR COMPANY IS TO MAKE POWER QUALITY UNDERSTANDABLE TO OUR CLIENTS.

We provide our customers deeper knowledge on Power Quality phenomena, international standards and norms, PQ impact on load and grid, pros and cons of every solution.

OUR PRODUCTS

We are developing standard and customized products for controlling the reactive power flow

HARMONIC FILTERING

CUSTOMIZED REACTIVE POWER FLOW CONTROL

MV&LV POWER FACTOR CORRECTION

OUR APPLICATIONS

Precise control of reactive power flow is a solution to many PQ problems

MOTOR START UP

Induction motor start up transient constists almost completely of reactive power. Controling it can solve for voltage drop, torque reduction, acceleration time.

RESONANCE

Resonance point position in the frequency domain could be localized by precise control of reactive power flow. Thus costly solutions could be easisly overcome.

VOLTAGE DISTURBANCE

Many disturbances injected into the utility grid are actually the uncontrolled reactive power in- or out- flows in fundamental or higher freqences, e.g. flicker, voltage variations, voltage drops, harmonic currents, etc...

RAPID REACTIVE POWER CHANGES

Very fast reactive power changes are often couse for many power quality issues. We have technology and know-how to control reactive power in real time.

FEATURED PRODUCT 1

Real time MV power factor correction

Most demanding reactive power applications require fast and accurate control. We have developed a solution for MV projects that comprises best of both worlds – fast switching of thyristors and low price per kVAr of a medium voltage equipment.

FAST

Thyristor controlled steps are ready to kick in in 20 ms, which is more than sufficient for most of MV applications.

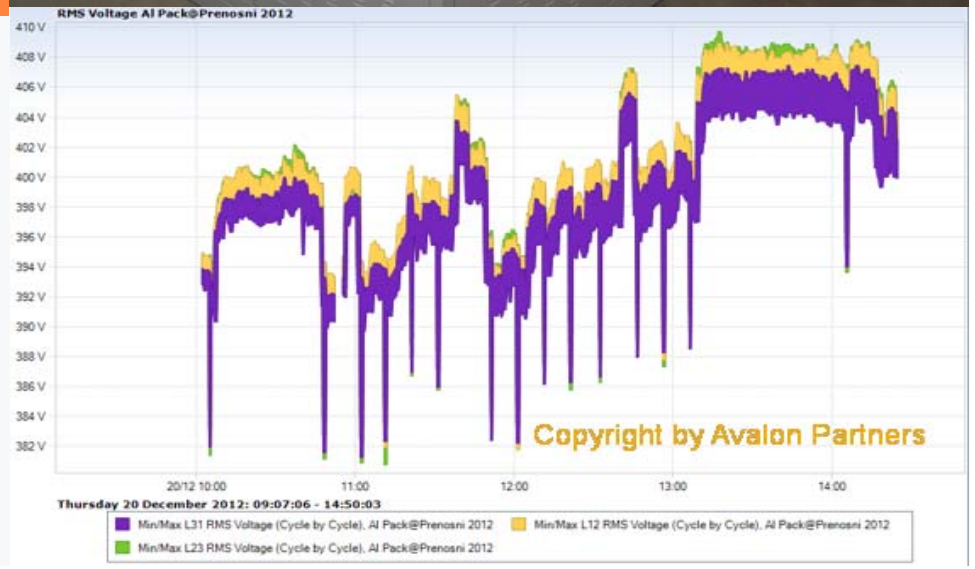
AFFORDABLE

While having the speed on our side, we still keep the benefit of low price per kVAr of large MV capacitor steps.

FEATURED PRODUCT 2

Resonant point position controller

A position of resonant point in frequency domain could be maintained by controlling the reactive power flow. We have developed the controller that localizes resonant point of an industrial grid within preset limits. This greatly simplifies power factor correction projects and reduces required investments



INNOVATIVE

New development never seen before. Tested and proven in hard, heavy duty enviroment

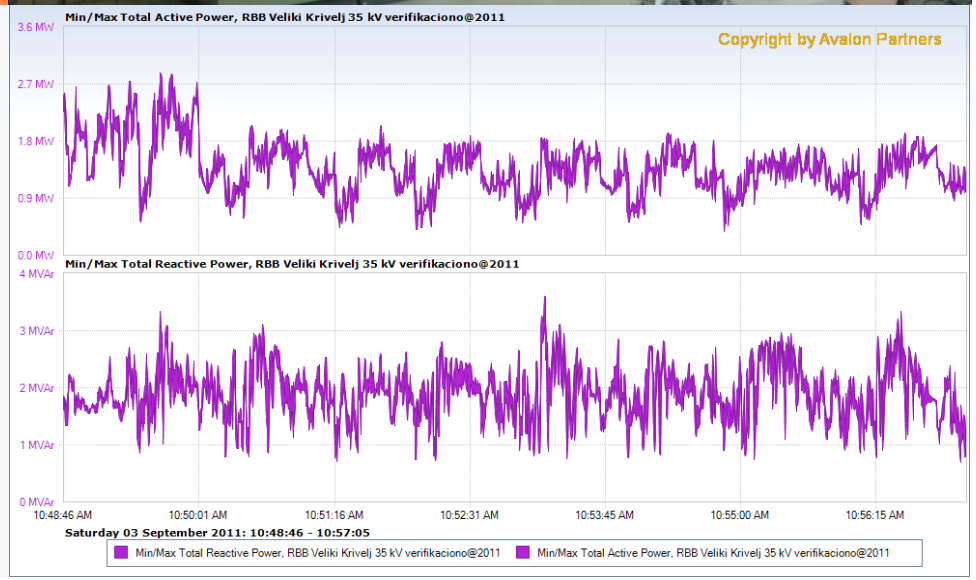
COST EFFECTIVE

Instead of investments in active and passive filters because of resonance, you can simply keep the system resonant point in a desired frequency band and keep existing capacitors. Effective.

FEATURED PRODUCT 3

Reactive power Motor Starter

Motor start up is a transient process with excessive reactive power demand, up to 6-7 times the nominal motor power, which creates a lot of power quality problems. Instead of expencive power electronic solutions, we offer the root-cause solution: reactive power source for cancelation of motor startup current.



REAL TIME

We switch on the required reactive power synchroniously with start up process. This reduces the motor current to 1.2-1.5 In, while keeping the startup torque at nominal value.

POWERFUL

This solution can be used as a central starter for all motors connected to the same busbars, without complex wiring.

FEATURED PRODUCT 4

AVALON RPOWER - State of the art LV power factor correction cabinets

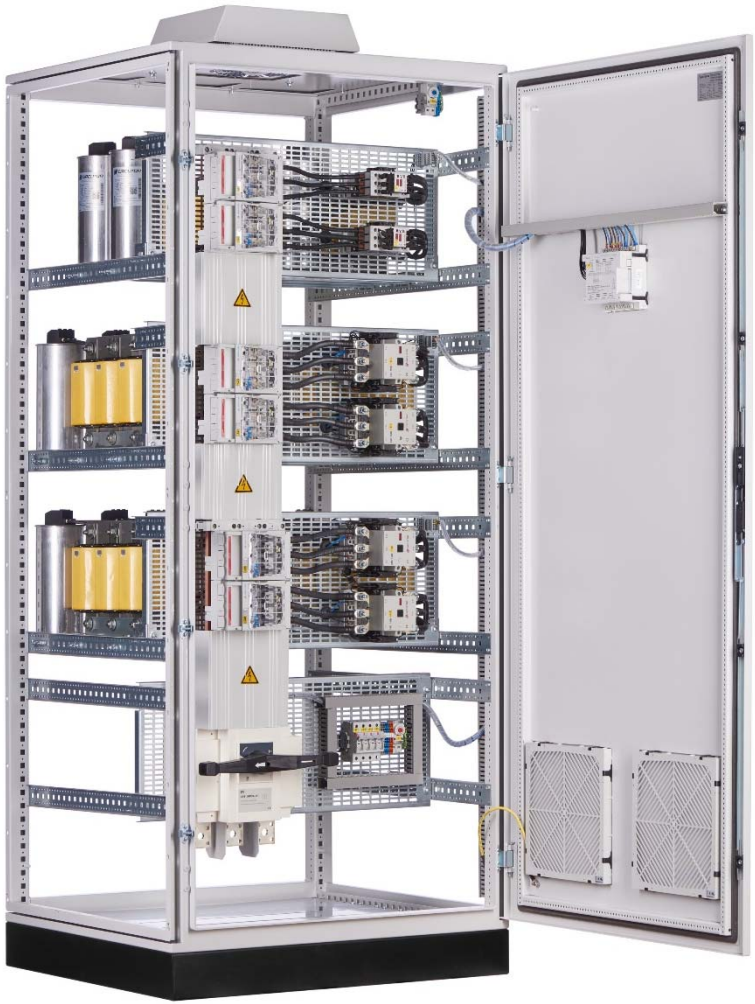
AVALON RPOWER power factor correction and harmonic filtering cabinet features latest technology in reactive power flow control. Extremly reliable, able to predict and protect against unlikely failures, selected components with lowest losses on the market, adaptive control and protection for high accuracy and long life time.

ROBUST AND RELIABLE

We have implemented most advanced safety features (dielectric monitoring, resonance protection, etc…) that warranty worry free operation even in most demanding evniroments.

LOW ROI

The devices were developed with efficiency in mind. We offer the lowest losses in class, thus ensuring low dissipation and operating costs.



“MAKING SURE YOU WILL REACH THE SUMMIT?

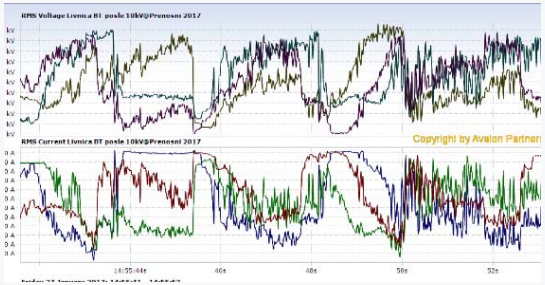
PREPARE YOURSELF TO JUMP OVER IT!”

CASE STUDY ARC FURNACE

Innovative solution for controlling reactive power demand of Arc Furnace

FAST REACTIVE POWER FLOW CONTROL

Solution for reactive power control of fast fluctuating load . New concept for optimized cost and results.



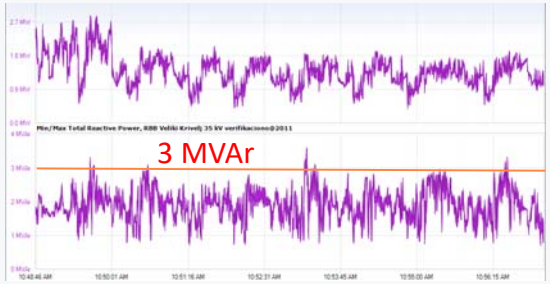
- STABLIZED VOLTAGE
- INCREASED HEAT INPUT up to 15%
- SHORTENED TAP TO TAP TIME for 12%
- REDUCED DISTURBANCE INJECTION

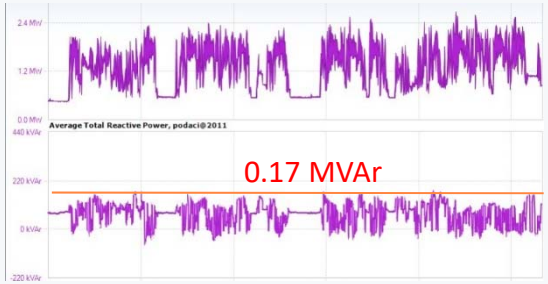
CASE STUDY MV REAL TIME PFC

Fast fluctuating MV power of an open pit excavators

3 MVAr/35 kV, 20 ms

Fast fluctuating load created increased voltage variations. Fast MV solution was designed and successfully implemented.



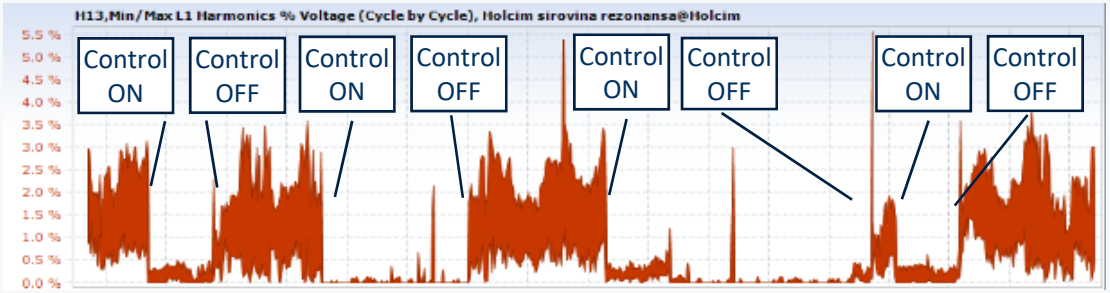


CASE STUDY RESONANT POINT POSITION

Fast fluctuating MV power of an open pit excavators

REACTIVE POWER SOURCE/SINK

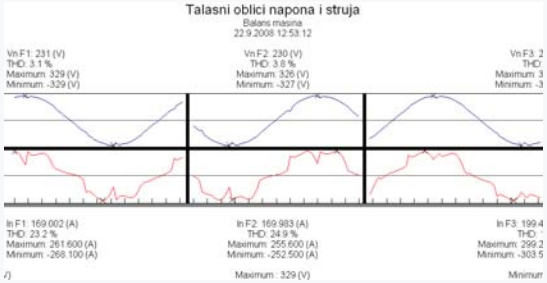
Controling the flow of reactive power we control the position of resonant point in the grid in order to avoid resonance adn79 keep the voltage THD on lowest possible level.

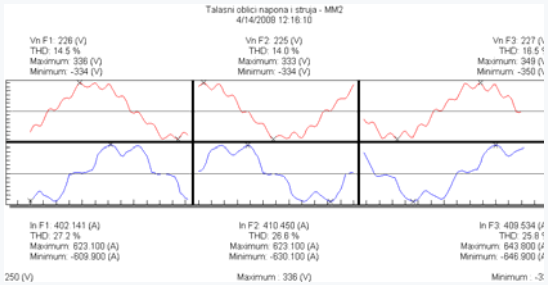


CASE STUDY LV RESONANCE

Hybrid passive harmonic filter for DC motor 160 kW

Operation of newly installed DC motor 160 kW created disturbances in LV grid. Passive filter was designed with multiple resonance points chosen for optimal harmonic current absorption.





- VOLTAGE THD REDUCED FROM 16.5% TO 3.3%
- CURRENT THD REDUCED FROM 23.8% TO 9%
- CURRENT REDUCED FROM 424 A TO 190 A
- REDUCED LOSSES

“

STICK TO YOUR TRUE NORTH, BUILD GREATNESS FOR THE LONG TERM

”

RUTH PORAT, CFO, ALPHABET

OUR PORTFOLIO

Avalon Partners photo album

TERMOVENT – ARC FURNACE 5T

TERMOVENT - HYBRID POWER FACTOR CORRECTION 2 MVAR/20 KV

OUR PORTFOLIO

Avalon Partners photo album

GASPROM OIL REFINERY

GASPROM OIL REFINERY 7.8 MVAR/6 KV

OUR PORTFOLIO

Avalon Partners photo album

GASPROM OIL REFINERY –2 29 MVAR/6 KV

GASPROM OIL REFINERY – 8.7 MVAR/6 KV

OUR PORTFOLIO

Avalon Partners photo album

MESSER OXYGEN FACTORY – 4.5 MVAR/6 KV

MESSER OXYGEN COMPRESSOR 5 MW – 2.2 MVAR/6 KV

OUR PORTFOLIO

Avalon Partners photo album

JP RESAVICA UNDERGROUND COAL MINING

RT PFC 1.9 MVAR/10 KV

OUR PORTFOLIO

Avalon Partners photo album

RTB COPPER OPEN PIT MINING

RT POWER FACTOR CORRECTION

OUR PORTFOLIO

Avalon Partners photo album

COAL MINE RU PLJEVLJA

MV PFC 1.2 MVAR/10 KV/189 HZ

OUR PORTFOLIO

Avalon Partners photo album

RTB COPPER SMELTING

FILTER 189 HZ, 2.1 MVAR/10 KV

OUR PORTFOLIO

Avalon Partners photo album

RTB OPEN PIT COPPER MINING

FILTER 189 HZ, 800 KVAR/10 KV

OUR PORTFOLIO

Avalon Partners photo album

KRONOSPAN

MV PFC 1.2 MVAR/10 KV/189 HZ

OUR PORTFOLIO

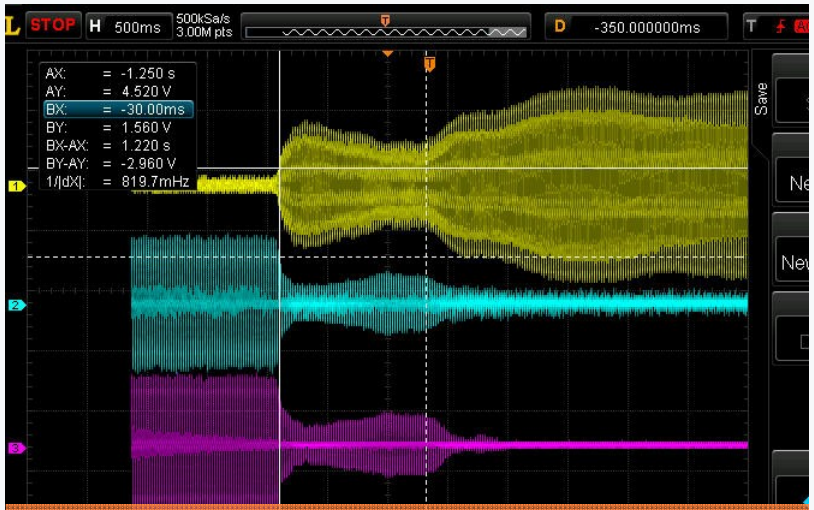
Avalon Partners photo album

HBIS STEEL MILL SMEDEREVO, SERBIA

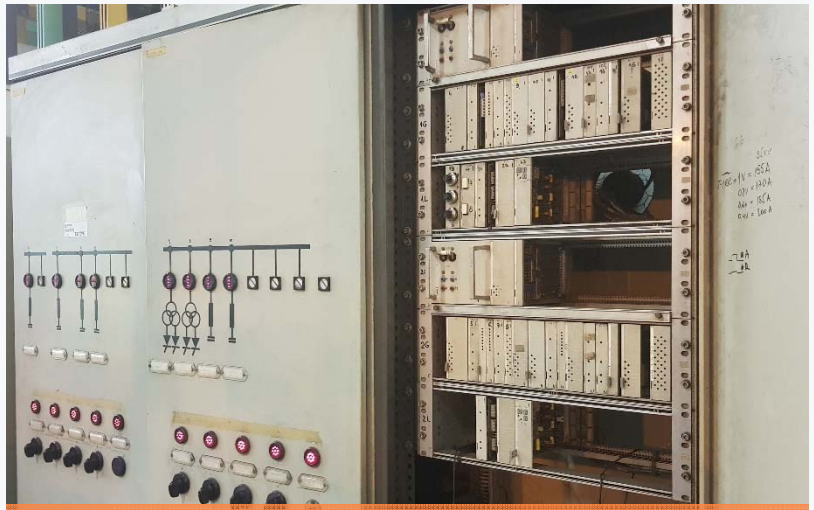
ABSORPTION FILTER 250&350 HZ, 2X16 MVAR/35 KV

OUR PORTFOLIO

Avalon Partners photo album



HBIS STEEL MILL – STATCOM 32 MVAR/35 KV
CONTROL CABINET RETROFIT



STATCOM 32 MVAR/35 KV
CONTROL CABINET RETROFIT

OUR PORTFOLIO

Avalon Partners photo album

EUROPOLIS MESH WELDING

RT PFC 600 KVAR/0.4 KV

OUR PORTFOLIO

Avalon Partners photo album

GREENPOINT WOOD CHIPPING

RT PFC 640 KVAR/0.4 KV

THANK YOU FOR YOUR ATTENTION!

Hope you found this presentation informative. For any additional information Avalon Partners team is at your disposal.

Visit us at WWW.AVALON.RS

Sincerely,
NIKOLA LAKETIC
CEO