

The Next Generation Elektronikon and ES Systems



The New Platform on Board in GA11-90 Range!

Agenda

- Elektronikon on GA range 11-90
- Next generation Elektronikon
 - sell the value of new features!
- ES systems based on new platform
 - what's new?
- Supporting tools: use them!
 - Simulation tools ES4 & ES6, small VSD
 - New animation on Elektronikon & ES, VSD

New Controls on Board

2009



Elektronikon

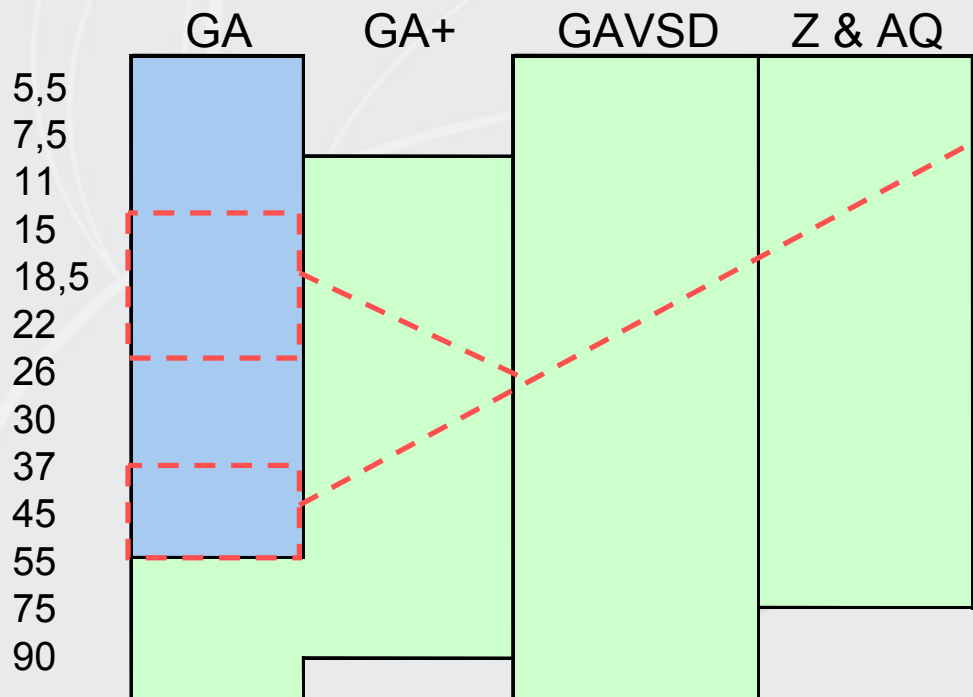


Elektronikon Graphic

The platform for the Future !
In the complete GA range above 11 kW



Controller Strategy – GA30+ to 90 & GA15-22



Elektronikon



Elektronikon
Graphic

GA15-22 & GA37-
GA45 as standard

Optional Graphic !

Serial Production Dates

	2009				2010			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Airpower units								
GA 30+90; GA 37-90 VSD; ES4i & ES6i	W 13							
GA 15-22	W 15							
ZT 15-55 VSD & MAS (+) GA 30+90		X						
GA 5-11 & GA 5-15 VSD & SF & MAS+ GA 37-90 VSD			X					
FD & BD & CD					X			
Wuxi units								
GA 37-75	W 12							
GA 30-45	W 14							
GA 37-55 VSD & GA 55-90 VSD		W 16						
GA 15-22		W 18						

Documentation on Global Business Portal

- Product connect
- Service diagram
- Dimension drawings
- AIB, ASL
- In/out phasing
 - Product connect operational date dependent on order income
 - Advance notice shall be given by Antwerp Product Company
- Pricing: More Value for same AMP!

Grouping File

- New Part no. available in the grouping file for complete range

▼ **Product Range Selection Charts**
2009-03-02 *00* [GA 30+-45 / MKV grouping \(2009\)](#)

- Wuxi Product Company units
- Antwerp Product Company units

Marketing Documents	
Product Range:	GA 30+ -45
Product Type:	Stationary Lubricated Compressor
Document Type:	Product Range Selection Charts
Category:	Sales Literature (ACC)
ContentType:	Global
Document Title:	GA 30+-45 / MKV grouping (2009)
	GA30+-45 - Mk5 - Wuxi.xls (87 Kb) Download time 56k - 12 seconds. Cable/xDSL - 2 seconds.
Downloads:	GA30+ 45 mrkV.xls (98 Kb) Download time

Impact on SALES Options:



- New part no. for options that will change

▼ 0000 0035 13 PHASE SEQUENCE RELAY					
Description	Factory version Ordering code	Sales Version	Used for / Remarks	Invalid Combinations	Factory Version Partlist
PHASE SEQUENCE RELAY	0000 0035 13	8092 2859 00	GA30+ -45		1608 1856 50

OLD

▼ 0000 0035 13 PHASE SEQUENCE RELAY					
Description	Factory version Ordering code	Sales Version	Used for / Remarks	Invalid Combinations	Factory Version Partlist
PHASE SEQUENCE RELAY	0000 0035 13	8092 2886 72	GA30+ -45		1608 1856 55

NEW

- New option ES4i/ ES6i

Modifications to come on GA Range

- GA 15-22 improved inlet filter-position
 - Expected W22
- GA > 37+ with new integrated dryer
 - Expected W18



The Elektronikon Evolution



The 5th Generation!

Why is Elektronikon important?

The Elektronikon is the brain of the compressor



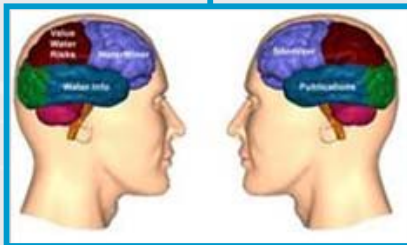
Measures



Controls



Data Storage



Communicates



Protects

Elektronikon New Hardware



- New 4th (Blue) led service indicator
- New interface with durable keyboard
- User friendly navigation system
- Upgradeable to graphical without re-cabling
- Web-server built-in for online visualisation



- CAN connection
- Ethernet connection
- IO expansion connection
- 4 Digital inputs
- 4 Analog inputs
- 6 Digital outputs

Elektronikon Graphic New Hardware





- High quality 3,5" Graphical display
- New 4th (Blue) led service indicator
- New interface with durable keyboard
- User friendly navigation system
- Web-server built-in for online visualisation





- RS 485 connection
- CAN 2x connection
- Ethernet connection
- IO expansion connection
- Upgradeable with add on In and Outputs
- SD card
- 10 Digital Inputs
- 7 Analog Inputs
- 9 Digital Outputs

Standard vs Graphic – Control Features!

Control Features		
Emergency stop	●	●
Overload relays	●	●
Remote start / stop (*)	●	●
Fault Water Drain (not on GA15-22)	●	●
Outlet temp	●	●
Dryer LAT	●	●
Delivery pressure	●	●
General Alarm	●	●

(*) will be standard disabled

Standard vs Graphic - Options!



Control Features		
Watercooled units in / out		●
Energy Recovery		●
DD / PD integrated filters		●
Remote pressure sensing		●
Remote pressure set		●
Remote load / unload (*)		●
Anti-condensation heater – main drive		●
Automatic / manual operation		●

(*) will be standard disabled

Upgrade to Graphic Required for above options on GA15-22 & GA37-45



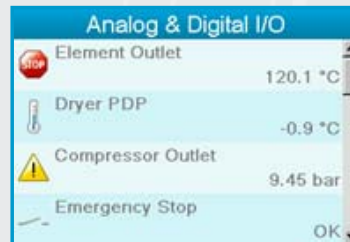
Algorithms make the Difference!

			
Improved	Delayed Second Stop	●	●
	Continuously pressure follow-up	●	●
	Dryer saver cycle	●	●
	Automatic Restart After Voltage Failure	●	●
new	Wide range of timers i.e clock based		●
	Fan/Dryer Saver Cycle		●
	ES4i/ ES6i		Option

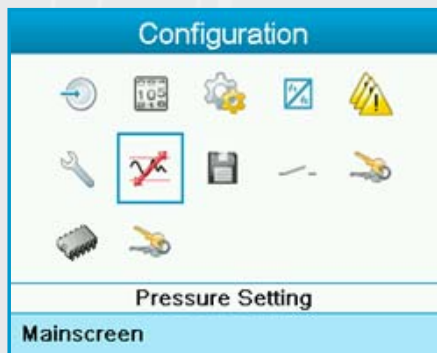
Elektronikon Graphic Interface



- Clear and easy readout
- Available in 32 different languages



- Protections
 - Warning level
 - Alarm level



- Clear icon indications and navigations

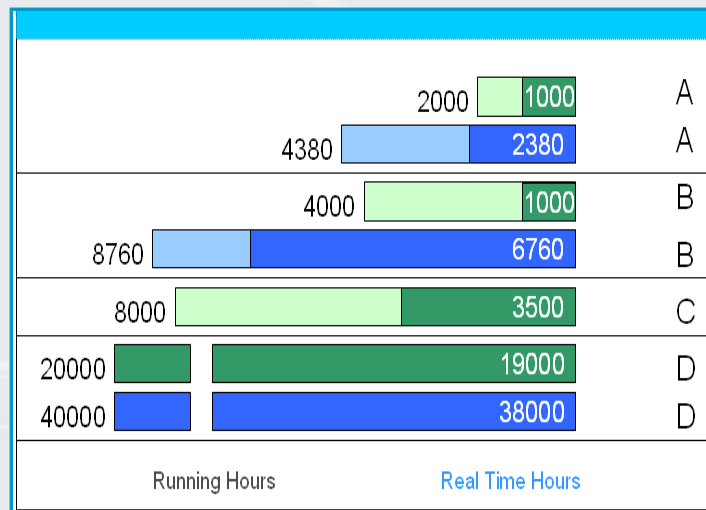
- Graphical service plan Indication
 - Running hours
 - Real time in-between service intervals



- Browser based online compressor status visualization

Graphical Service Plan Indicator

- Graphical visualization of the counters
- Real running hours (Effective hours compressor is running)
 - Load
 - Unload
- Real time hours (Real hours)
 - Load
 - Unload
 - Standby
 - Stopped
 - Switched off



Graphical Service Plan Indicator

Example

Compressor is:

Loaded 8 hours

Unload 2 hours

Standby 6 hours

Stopped 8 hours



10 running hours

24 real time hours

Browser based online compressor status visualization

- What is needed
 - Elektronikon (Standard or Graphic)
 - Ethernet Cable / internal network
 - Computer with Internet explorer 6.0 or higher







+



+



Key Figures new Elektronikon's

	Generation 4		Generation 5	
Digital Input	3		4	
Analog Input	2x temp + 1 Press		3x temp + 1 Press	
Digital Output	6		6	
Other	1 CAN		1 CAN + 1 ETHERNET + IO	
Digital Input	10		10	
Analog Input	3x temp + 2 Press		5x temp + 2 Press	
Digital Output	9		9	
Other	1 CAN + RS485		2 CAN + 1 ETH. + IO+ RS485	
General	SAME DIMENSIONS			
μP	20 mips		300 mips	
Memory	256k (RAM) + 1Mb		8Mb (RAM) + 16Mb	
Display	Monochrome 4 lines		Graphical 3.5"	

ES Systems Take you into the Future



ES Built on the Mk5 platform

The Elektronikon has the knowledge to steer multiple compressors



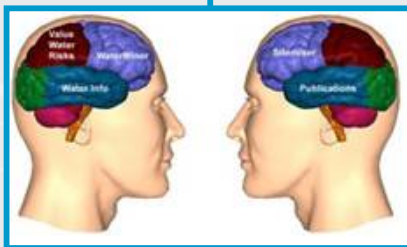
Measures



Controls



Data Storage



Communicates



Protects

Why Offering ES Controller?

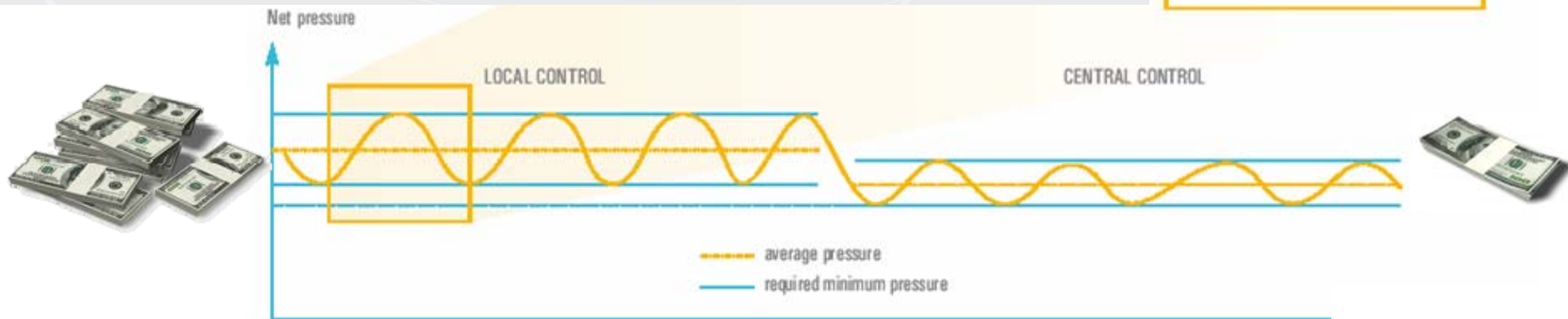
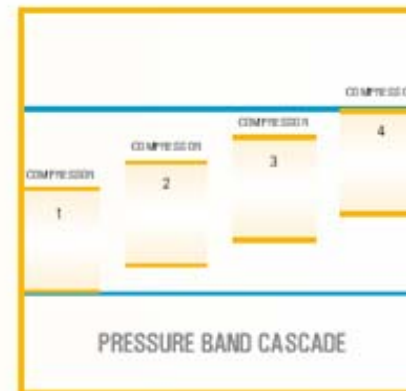
- Benefits for the customer?
 - To reduce the running cost of the complete compressor installation
 - \$ Lower consumed power
 - \$ Lower service cost
 - \$ Reduce the running hours (Equal wear, stop time...)
 - \$ Reduce leakages

- Benefits for Customer & Atlas Copco
 - Create a good relationship and be “The compressed air consultant”
 - + Optimize the current installation
 - + Optimize the future installation

How Do ES Controllers Save Money

Key regulating principles

- Single measuring point reduces overhaul pressure band to 0.5 bar or 7 psi
- Reducing the operating pressure of the machines
- Multiple regulation functions embedded in the ES Controller



The Value Of Compressed Air

A Typical Example Of Possible Running Cost Reductions

- An installation with:
 - 4 x 30HP oil lubricated compressors
 - Running 80% loaded in a cascade
 - 10 working hours per day
 - 5 days a week, 47 weeks a year
 - Compressors are not shut down during the night

Running Costs Without An ES Controller

Typical pressure band (cascade)	29 psi
Energy cost (\$ per kWhr)	0,1
Leakage loss	20%
Daytime running cost	\$77
Night time running cost	\$24

Total running cost per year **\$23.676**

Running Costs With An ES Controller

Typical pressure band (cascade)	7 psi
Energy cost (\$ per kWhr)	0,1
Leakage loss	18%
Daytime running cost	\$72
Night time running cost	\$0

Total running cost per year **\$16.838**



The Value Of Compressed Air

A Typical Example Of Possible Running Cost Reductions

- In this example using an ES controller reduces costs by around 29%
- How can such a large reduction be accounted for?

Running Costs Without An ES Controller

Typical pressure band (cascade)	29 psi
Energy cost (\$ per kWhr)	0,1
Leakage loss	20%
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Total running cost per year

\$16.838



ES Series (All) – Multiple Compressors Control



**New release expected
Quarter 3/2009**

ES 4i	ES6i	ES 6
ES integrated in compressor controller	ES integrated in compressor controller	Wall-mounted controller
4 compressors	6 compressors	6 compressors
1 VSD	Up to 6 VSD (Atlas Copco)	Up to 6 VSD (Atlas Copco)
No turbo	No Turbo	No Turbo
Non-AC compressors*	Non-AC compressors*	Non-AC compressors (via IO)
8092 2914 94**	8092 2915 02**	8092 2883 36

*Non MkIV and Mk5 controlled machines needs to be connected over CAN box

** Can also be ordered as a factory fitted option see product connect.



Key Benefits that make the Difference!



	ES4i	ES6i	ES6
Single point of measurement	●	●	●
Remote pressure sensor	Optional	Optional	●
Adapt net pressure at real need	●	●	●
Delay Second Stop (on compressor level)	●	●	●
Free Ethernet based basic monitoring !	●	●	-
Optimum usage of the regulating VSD	●	●	●
Multiple VSD control @ optimum speed !	-	●	-
Compressor Priority Management	●	●	●
Equalization of running hours	●	●	●
Complete visualization	Optional	Optional	Optional



Key Benefit : Browser Based Online Compressor Status Visualization (Mk5 only)

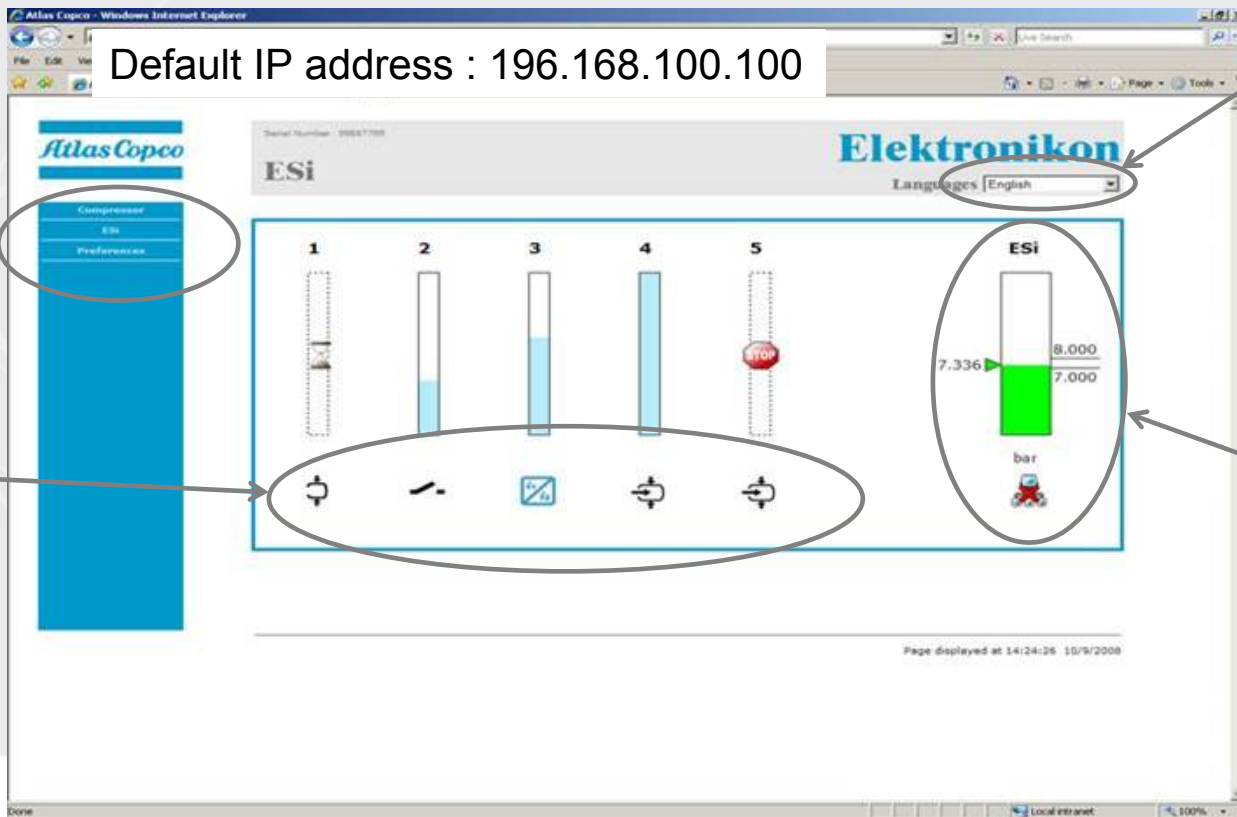
Preferences:

Metric / Imperial
Selection ES or
Elektronikon

Status of different
machines

Default IP address : 196.168.100.100

Language

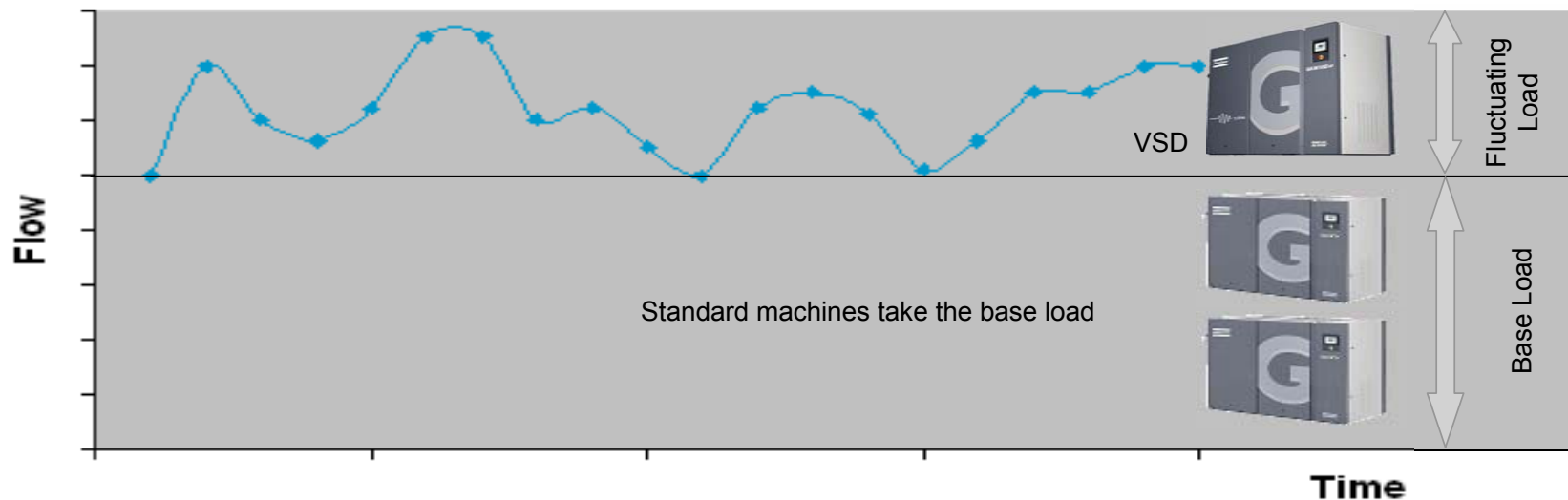


Total net
pressure

Key Benefit: Multiple VSD @ Optimum Speed (ES6i only)

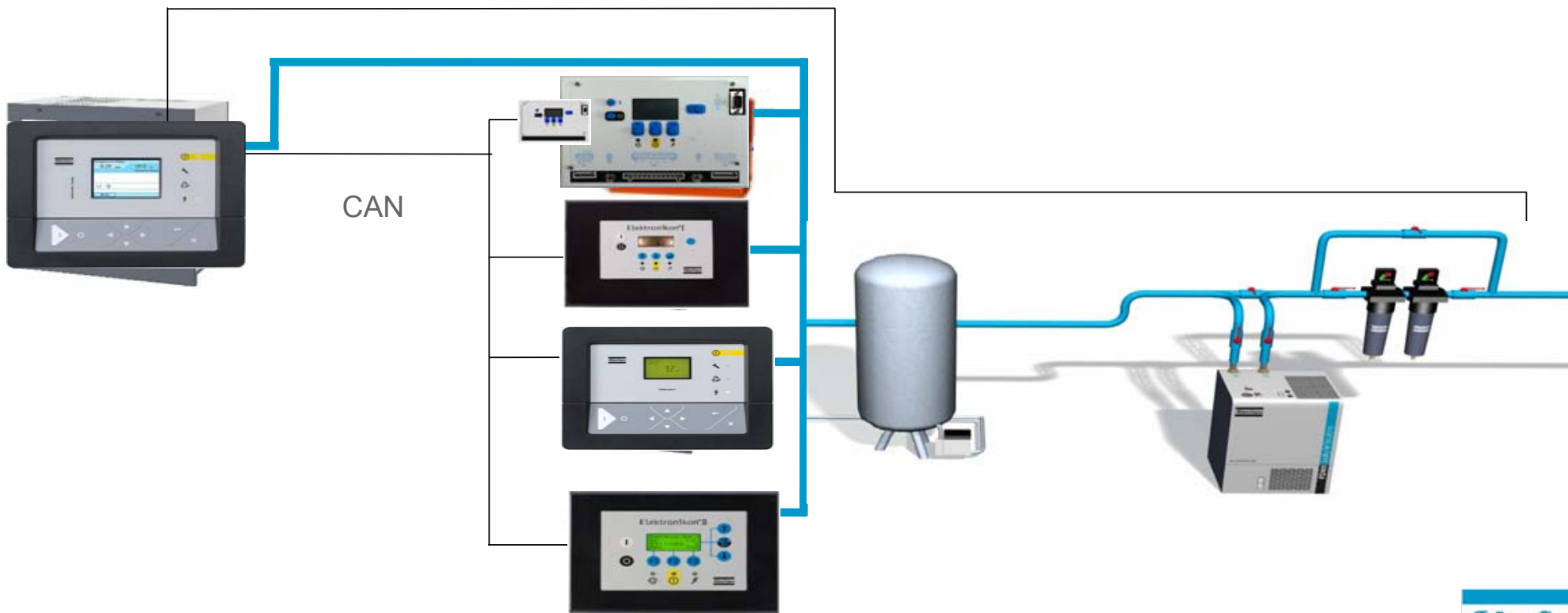
Use of the VSD to match flow fluctuations (in case of multiple Mk5 equipped VSDs)

- The ES6i can handle more than 1 Atlas Copco VSD
- 1st VSD is speed regulating // 2nd 3rd... VSD will run @ optimum speed (≠ maximum speed)



A Typical Installation Example

Wiring Schematic With CANBox



New Data for the ES on the GBP

- FAQ on the ES4i & ES6i
- How to install:
 - ES4i with remote pressure sensor
 - ...
- Installation proposal
 - How to set-up installation
 - ...
- Sales presentation on ES

The screenshot shows the Atlas Copco Global Business Portal. The main navigation bar includes Home, News, Marketing, Aftermarket, eCommerce, Internet Links, and Create Cont. The page title is "Global Business Portal Compressor Technique". Below the navigation, there are sections for "ES Central Controllers - Current documents" and "ES Central Controllers - Archived documents". A table lists various documents, with a "Publication Date" dropdown menu. The table content is as follows:

Sort by:	Publication Date		Docu
-> Range	Air distribution		
-> Language	CNG & IG Accessories		
-> Archive	CNG & IG Compressors - Installations		
-> Promotional Material	Control and Monitoring Systems	AIRconnect	
	Marine Air Systems	Cosmos	
My Subscription	Medical Systems (AS)	ES Central Controllers	
	Medical Systems (ISO-HTM)	Elektronikon	
	Medical Systems (NFPA99-US Std)	Greenfield CSP	
	OEM & Key Accounts	Greenfield SEKA	
	Other	Greenfield SEMON/MODMON	
	PET & High Pressure Compressor	QC	
	PET & High pressure Ancillaries	RD	
	Portable Compressor		

New Calculation Tool to Calculate Savings

- This is a calculation tool that calculates the savings achieved by the ES
 - Reduced pressure band
 - Dual pressure band (or stopped)
- Savings will be calculated in
 - Energy Savings
 - CO2 savings
- Estimated time to make calculation 5 minutes
- This program can be found on the Airexpert portal

Atlas Copco ES 4 & ES6 Saving Simulator

CONFIGURATION SET-UP COMPRESSOR


Compressor	Status	% loaded in production	Pressure setting Load	Pressure setting Unload	Compressor power
1	Active	100%	7.8 bar (113 psi)	8.6 bar (125 psi)	30 kW (40 HP)
2	Active	10%	7.5 bar (109 psi)	8.3 bar (120 psi)	30 kW (40 HP)
3	Active	40%	7.2 bar (104 psi)	8 bar (116 psi)	30 kW (40 HP)
4	NOT Active	25%	6 bar (87 psi)	8 bar (116 psi)	30 kW (40 HP)
5	NOT Active	10%	7.5 bar (109 psi)	8.3 bar (120 psi)	30 kW (40 HP)
6	NOT Active	0%	7.8 bar (113 psi)	8.6 bar (125 psi)	30 kW (40 HP)

Production Pressure: 6.9 Bar (100 PSI)
Pressure No production: 6 Bar (87 PSI)


Buttons: Go to Customer set-up, Go to Results

VSD Saving Tool up to 30 kW

- Together with your customer
 - Select your machine
 - Draw your profile
 - Select electricity cost and currency
 - Fill in Pricing
- Present the saving within 10 minutes
- Improve sales efficiency

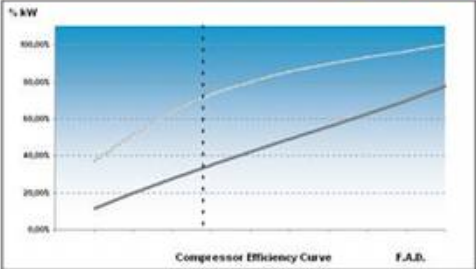


Variable Speed Drive
Ver. 2.0



Conversions kW Data
Administration

COMPRESSORS	
Fixed Speed Compressor on/off load control	Atlas Copco 50Hz Bar GA30 50Hz Setpoint 8.5-10 bar
Pressure (bar)	7,5 - 8,5
Pressure (PSi)	109 - 123
Energy Required	- kWh
Energy cost	- ATS
Cost per m ³	- ATS
Variable Speed Compressor	GA26VSD Setpoint 4-10bar/58-150 psig
Pressure (bar)	7,5
Energy Required	- kWh
Energy cost	- ATS
Cost per m ³	- ATS

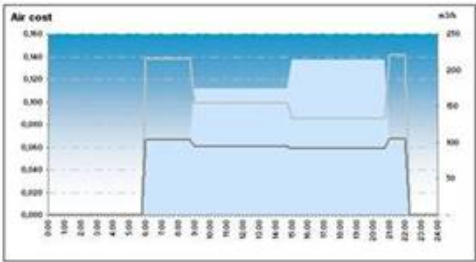


DAILY OPERATING REQUIREMENTS	
Daily Hours	8:00 - 22:00
Start	8:00
End	22:00
Days per week	7
Weeks per year	52
Annual hours	5,376

AIR DEMAND			
F.A.D.	97 m ³ /h	26,9 l/s	57,1 cfm

Time Stobs	
Operating Hours	0:00
Remaining time	0 Hours : 0 Min

View Results



Energy Reduction 0,0% 0 kWh : 0 ATS

Simulation Tools on the Airexport Portal

The screenshot shows the Atlas Copco Global Business Portal. The navigation menu includes Home, News, Marketing, Aftermarket, eCommerce, Internet Links, and Create. The 'Marketing' menu is expanded, showing options like Knowledge Base, AIF Application Portal, Marketing Documents, Cad-Access, Product Connect, AIP selector, Photo archive, **AirExpert Portal**, Compressor Calculator, Competitors Online, Rental Knowledge Base, and Licence Portal. The AirExpert Portal page is titled 'Welcome to the new AirExpert Portal!' and provides an overview of the program. Below the text is a table listing various simulation tools.

Title	Description	
ES Simulator	The ES simulator simulates a compressor room under local or central control in order to predict energy savings. The program can process a flow profile or can run "OnSite" when connected to the compressors over CAN.	Details
ME Box Configurator	The ME Box Configurator is designed to configure the individual equipment used in accurate data logging exercises of air compressor systems.	Details
CD & ICD Selection	Excel based selection tool for CD dryers	Details
PASEL II	Calculator, machine database, user database	Details
ZBSizer	Performance calculator for ZB machines. This program is secured and will not run without a dongle USB key.	Details
FD Dryers - Complete Range	Simple excel based FD selection tool	Details
Pressure / Volume Calculator	Simple excel analysis tool that demonstrate additional air capacity needed in case the customer cannot get his desired operating pressure (after expanding his factory or other reasons...)	Details
GN Business Tools	GN business tools	Details



Usefull Elektronikon and VSD Flash Animation



Elektronikon & ES



Elektronikon Grafic



VSD technology

Top 5 to Remember

- Complete GA11-90 range will have new controller embedded W15 latest
- New and Improved algorithms are remarkable Customer benefits!
- New hardware with New user friendly interface and web browser for visualization!
- ES4i & ES6i with Multiple VSD @Optimum speed VSD by extra license!
- New animations and simulations available!

The Elektronikon Evolution

Algorithms make the Difference!

Browser based online compressor status visualization

Key Benefit: Multiple VSD @ Optimum Speed (ES6i only)
Use of the VSD to match flow fluctuations (in case of multiple Mk5 equipped VSDs)

Usefull Elektronikon and VSD Flash Animation

Elektronikon & ES

Elektronikon Grafic

VSD technology

Atlas Copco

Questions?





Atlas Copco

