### MEASURING PROGRAM for ANALOG-MEASURING-CASE with integreated Datenlogger

### **Operation manual**

- Standart data rate of 1 second
- 1000 days long time logging
- 8 universal analog inputs
- 4 different measuring points





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#### SYSTEM REQUIREMENTS

#### WINDOWS 98 und WINDOWS NT 4.0, WINDOWS 2000, XP

#### **INSTALLATION.**

Insert the CD-Rom in your computer.

The setup will start automaticly

If not, please start the setup manually by double click on setup.exe

PROGRAM LICENSE

The license for the PC program exclusively applies to the control number given under the identification code and may be copied only for safeguarding purposes.

Multiple installations only are allowed provided that this concerns the data of the control number named under the identification code

1

### Introduction and operating

The compressed air measuring with this program contains the following measuring forms:

#### 1. Compressed air measuring with analog amperé clamp

#### 2. measuring with different sensors:

- Pressure Transducer
- Dew Point
- Temperature
- Flow
- Power

#### The PC program makes the energy consumption for compressed air transparent.

The compressed air consumption in your compressed air station is documented and evaluated. You receive a compressed air consumption graphic for a graphic reproduction for every day, compressor running time and an energy table.

The energy table lists the running time of your compressors for load and idle times and evaluates the compressed air costs in the respective national currency.

The produced compressed air crowd gets moreover single for every mpressor and in the sum pointed. The operation explains herself by the badge marking of themselves



### Amperé clamp connection for compressor measuring



#### Current adapter:

The output of the current clamp is 4-20 mA and will be connected to the analog inputs of the measuring case

#### Examble:

Clamp type	Measuring range	Output signal	Max. Motor kW
200 A	0-200 A	0-200 mA	75 kW
400 A	0-400A	0-400 mA	160 kW
1200 A	0-1200 A	0-1200 mA	500 kW

3

### Programming with the keys

#### Start measuring

MEAS	UREM	IENT	INAC	TIVE
27.02	2.20	10	08:5	0 : 2 0
AE1 :	= 04	,3 A E	1 =	09,1
AE3 :	= 06	,5 A E	3 =	16,0
AE5 :	= 10	,4 A E	5 =	13,6
AE7 :	= 11	, 0 A E	7 =	05,2

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Α	Е	3		=		0	6	,	5		Α	Е	3		=		1	6	,	0
Α	Е	5		=		1	0	,	4		Α	Е	5		=		1	3	,	6
Α	Е	7		=		1	1	,	0		Α	Е	7		=		0	5	,	2



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MEASUREMENT INACTIVE 27.02.2010 08:50:20 EDIT MEASURING DATA COPY MEASURING DATA

DELETE MEASURING DATA VIEW MEASURING DATA

# E

 MEASUREMENT
 INACTIVE

 27.02.2010
 08:50:20

 COPY
 MEASURING
 DATA

 2010-02-27
 2010-02-21

 XXXX-XX-XX
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 XXXX-XX-XX
 XXXX-XX-XX

 XXXX-XX-XX
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 XXXX-XX-XX-XX
 XXXX-XX-XX

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#### E



#### delete measuring data

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Α	Е	3		=		0	6	,	5		Α	Е	3		=		1	6	,	0
Α	Е	5		=		1	0	,	4		A	Е	5		=		1	3	,	6
Α	E	7		=		1	1	,	0		A	E	7		=		0	5	,	2

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### Programming with the keys



### Start measuring

#### Examble: measuring of following compressors and pressure

- 1. 2 Compressors with 12,5 m<sup>3</sup>/min capacity
- 2. 1 variable speed Kompressor with the capacity of 4-25,4 m<sup>3</sup>/min
- 3. Net pressure

Note the connected sensors to the data list together with the span of amperé mesurment.

In the example mentioned above was connected following equipment:

- Input 1+2 amperé clamp of 200 A
- Input 3 amperé clamp of 200 A 0-400 A
- Input 5 pressure sensor 0-16 bar

Before the measuring, please, please write down the attached components to the data list,

so that for the measuring analysis, the parameter settings and customer name are available.

	Data list for analog measuring																		
Input	Compressor Typ or Sensor Typ	Load / unload	variable speed	m³/min - Minimal	m³/min - Maximal	Motor kW	Cos phi		Value of amperé clamp	Value of kW range		Net pressure sensor	Extra pressure sensor	Temperature sensor	Flowsensor		Value at 4 mA	Value at 20 mA	Input
1	X100	х			12,5	75	0,9		200								0	200	1
2	X100	х			12,5	75	0,9		200								0	200	2
3	X200-FU		х	4	25,4	132	0,95		400		ſ						0	400	3
4											ſ								4
5	Drucktransmitter										ľ	х					0 bar	16 bar	5
6											ľ								6
7		[ 									ľ								7
8																			8
	Case No.		1	Da	ate	27.02	.2010		Custom	er name						SIE	MENS		]



### Read 4 different measuring points

### Create folder for measuring files



### Read Data to the program



#### 1. Select customers folder

5. Messdaten markieren

Where the measuring data are stored

- 2. Enter Customers name
- 3. Select the folder to store the measuring data
- 4. the same for measuring point 2-4

earch folder 🛛 📇 🕐 🔀	Memorize measuring point	🗸 🛃
	Enter customer name :	Siemens-1
pleasantsoftdb     Programme	Customer directory :	S:\Siemens-1\Siemens-1 Change
Carl R-Admin     Setup Airleader MM Webserver	Choice of measuring point and dat	a copy
Case-1	Measuring point 1	Directory measuring point 1 : S.Siemens-1\Siemens-1\Siemens-1\Measuring Point1
B ← Case-3 B ← Case-4 D ← Telefonanlage	Measuring point 2	Directory measuring point 2 : S:\Siemens-1\Siemens-1\Measuring Point2
⊕ 🚰 Treiber ⊕ 🔮 System ⊕ System	Measuring point 3	Directory measuring point 3 : S:\Siemens-1\Siemens-1\Measuring Point3
ок Cancel	Measuring point 4 J	Directory measuring point 4 : S:\Siemens-1\Siemens-1\Measuring Point4
		Apply Cancel

Und auf speichern klicken	Copy measuring data
	Сору 📇 🔀
Measuring data read and save 🖉 📳	
Suchen in: 🔁 Case-1 💽 🗢 🖻 📸 📰 -	2007-02-10.mes from <sup>the</sup> to "Measuring Point!"
Zuletzt 2007-01-30.mes	Cancel
verwendete D         2007-02-02.mes           2007-02-03.mes         2007-02-04.mes           Desktop         2007-02-04.mes           2007-02-06.mes         2007-02-06.mes           2007-02-06.mes         2007-02-06.mes	Measuring data will be read after klick to "Apply
Eigene Dateien  2007-02-08.mes  2007-02-09.mes  2007-02-09.mes  2007-02-10.mes	Measuring data read and save
Arbeitsplatz 2007-02-11.mes	Measuring point 1 Progress
	File : 2007-02-14.mes Progress
Netzwerkumgeb         Dateiname:         "2007-02-15.mes" "2007-01-30.mes" "2007-01 ▼         Save           ung         Dateityp:         Measurement         ▲ Abbrechen	Carcel

### Define measuring chanels

🔲 Defi	ine measuring channel			a 🛛
- Measu	uring point interpretation 1	Measuring point interpretation 2	Measuring point interpretation 3	Measuring point interpretation 4
AI01	🔽 K 🗆 S Channel 1 💌	Al01 🔽 K 🗆 S Channel 4 💌	Al01 🔽 K 🗆 S Channel 7 💌	Al01 🔽 K 🗆 S Channel 10 💌
AI02	🕶 K 🗖 S Channel 2 💌	Al02 🔽 K 🗆 S Channel 5 💌	Al02 🔽 K 🗆 S Channel 8 💌	Al02 🔽 K 🗆 S Channel 11 💌
AI03	🕶 K 🗖 S Channel 3 💌	Al03 🔽 K 🗆 S Channel 6 💌	Al03 🔽 K 🗖 S Channel 9 💌	Al03 🔽 K 🗆 S Channel 12 💌
AI04	🗖 K 🗖 S 🗰 💌	Al04 🗖 K 🗖 S 🗰 💌	AIO4 🗖 K 🗖 S 🗰 without 💌	Al04 🗖 K 🗖 S 🔤 without
AI05	🗆 K 🔽 S Channel 17 💌	А105 ГК 🔽 S Channel 18 💌	AI05 🗆 K 🔽 S Channel 19 💌	Al05 🗆 K 🔽 S Channel 20 💌
A106	🗖 K 🗖 S without 💌	Alos 🗖 K 🗖 s 🗰 💌	AIO6 🗖 K 🗖 S 🗰 without 🖃	AIO6 K S Channel 20
AI07	🗖 K 🗖 S 🗰 💌	Alo7 🗖 K 🗖 S without 💌	AIO7 🗖 K 🗖 S 🗰 🗹	Al07
AI08	🗖 K 🗖 S 🔤 without 💌	Alos 🗖 K 🗖 s 🗰 💌	AID8 🗖 K 🗖 S 🗰 without 🖃	AI08 II K II S Channel 26 Channel 26 Channel 27
AI09	🗖 K 🗖 S without 💌	Alog 🗖 K 🗖 s without 💌	Alog 🗖 K 🗖 S without 🖃	Alog 🗖 K 🗖 S 🕅 Without
AI10	🗖 K 🗖 S 🔤 without 🖃	Al10 🗖 K 🗖 S 🗰 🗹	Al10 🗖 K 🗖 S 🔤 without 🖃	Al10 🗖 K 🗖 S 🔤 without 🖃
Al11	🗖 K 🗖 S without 💌	Al11 🗖 K 🗖 S without 🖃	Al11 🗖 K 🗖 S without 🖃	Al11 🗖 K 🗖 S without 🖃
Al12	ГК ГS without	Al12 🗖 K 🗖 S without 💌	AI12 🗖 K 🗖 S without 💌	AI12 TKTS without 💌
	(1)		Apply	Cancel

#### Define measuring chanels

- **Chanel 1-16** = Compressor chanels (only)
- Chanel 17-32 = Chanels for sensor with 4-20 mA output. Examble: pressure transducers, Flow sensors, temperature sensors, dewpoint sensors, kW-measuring devices, Amperé-measuring devices. e.g.
- Mark "K" for compressors
- Mark "S" for sensors

#### See configuration in configuration mask (1)

- 12 compressors in 4 different compressor stations
- 4 pressure sensors (each in one station)

#### Datenübernahme

Durch klicken auf den Button "übernehmen" werden die Daten der einzelnen Stationen zusammengerechnet und im zuvor erstellten Verzeichnis abgelegt.

Measuring data pre	oare and save	
Measuring point : Measuring point 1 Progress		
File : 2007-01-31.mes Progress		
		[Cancel]
Open		
Search in:	🛅 Siemens-1	-
Zuletzt verwendete D	Case-1 Case-2 Case-3 Case-4 Siemens-1	

### **Evaluation data**

Compressed Air Visualisation -	(Application Started on 02.03.2010 at 14:08:20)	<b>e</b> - • <b>x</b>
File Diagram Zoom Calculation Optio	ns ?	
<b>Open</b> Change	TA- DP- AN- III III ? C <> Ex	R A
Read		
Analyse 🚽		
Save as		
Data logging Record with parameter programming	Klick on "Analyse" or Button "A"	
Record close		
Exit A	t+x	

#### mark the files "mes"

Klick to "save"

Compressor Station

365

Compressor Station

Working Days/Year



Change Read Analyse

Save as...

Klick to File "open"

Set data of:

- Company name
- Site
- Name of compressor station
- Working Days/Year Tage/Jahr
- Electrical Cost/kWh

<back Next > Cancel

### Define compressor chanels

AE1AE	4										
Channel 1 / AE1	Measuring [M1 K01]	Application Compressor [A] Concressor [A] Concresso	•	<b>_</b>	4mA 0,00	20mA 200,00	[unit] A	[m²/min] 12,5	Motor [kW]	Voltage [V] 400,0 N	Load cos phi 0.900 o-load cos phi 0,600
2/AE2	(M1 K02)	Speed control compressor [KW]	-	-	4mA 0,00	20mA 200,00	[unit]  12,5	[m³/min] 12,5	Motor [kW] 75,0	Voltage [V] 400,0	Load cos phi 0,900 o-load cos phi
37AE3	[M1 K03]	Speed control compressor (A)	•	[	4mA 0,0	20mA 400,0	[unit] A	min-[m²/min] 4,0 max-[m²/min] 25,4	Imin [A] 0,0 Imax [A] 400,0	Voltage [V] 400,0 N	Load cos phi 0,950 o-load cos phi 0,600
4 / AE4	(M2 K01)	Compressor [A]	Ŧ	_	4mA 0,00	20mA 200	[unit] [A	[m³/min] 12,5	Motor [kW] 75	Voltage [V] 400,0 N	Load cos phi 0,9 o-load cos phi 0,600
AE5AE	8		1								
Channel 5 / AE5	Measuring [M2 K02]	) Application	•	,	4mA 0,00	20mA 200,00	[unit] A	(m²/min) 12,5	Motor [kW]	Voltage [V] 400,0 N	Load cos phi 0,900 o-load cos phi 0,600
67AE6	[M2 K03]	Speed control compressor (A) no sensor Compressor (A) Compressor (KW) Speed control compressor (A) Speed control compressor (KW)	•	-	4mA 0,0	20mA 400,0	[unit] [A	min-[m²/min] 4,0 max-[m²/min] 25,4	Imin [A] 0,0 Imax [A] 400,0	Voltage [V] 400,0 N	Load cos phi 0,950 o-load cos phi 0,600
7 / AE7	[M3 K01]	Compressor [A]	•	[	4mA 0,00	20mA 200,00	[unit] A	[m²/min] 12,5	Motor [kW]	Voltage [V] 400,0	Load cos phi 0,900 o-load cos phi
87AE8	[M3 K02]	[Compressor [A]	•	[	4mA 0,00	20mA 200	[unit] A	[m²/min] 12,5	Motor [kW]	Voltage [V] 400,0 N	Load cos phi 0,5 o-load cos phi 0,600
AE9AE	12										
Channel 97AE9	Measuring [M3 K03]	Application Speed control compressor (A)	•		4mA 0,0	20mA 400,0	[unit]  A	min-(m²/min) 4,0 max-(m²/min) 25,4	lmin (A) 0,0 Imax (A) 400,0	Voltage [V] 400,0	Load cos phi 0,950 c-load cos phi 0,600
10/AE1	0 (M4 K01)	Compressor [A]	•		4mA 0,00	20mA	[unit] [A	[m²/min]   12,5	Motor [kW] 75,0	Voltage [V] 400,0	Load cos phi
11 / AE1	1 (M4 K02)	Compressor (A)	•		4mA 0,00	20mA 200,00	[unit] [A	(m³/min) 12,5	Motor [kW]	Voltage [V] 400,0 N	Load cos phi 0,600
127AE1	2 (M4 K03)	Speed control compressor [A]		[	4mA 0,0	20mA 400,0	[unit] [A	min-(m²/min) 4 max-(m²/min) 25,4	lmin (A) 00 Imax (A) 400,0	Voltage [V] 400,0 Ne	Load cos phi 0.950 c-load cos phi 0,600
									< <u>b</u> ack	<u>n</u> ext >	Cancel

#### Measuring point 1 (M1) compressors

- Compressor 1+2 load/unload measuring device 200 A clamp 12,5 m<sup>3</sup>/min, 75 kW Motor cos phi of load/unload
- Compressor 3 variable speed measuring device 400 A clamp 4-25,4 m<sup>3</sup>/min, 132 kW Motorcos phi of load/unload

#### Measuring point 2 (M2) compressors

- Compressor 1+2 load/unload measuring device 200 A clamp 12,5 m<sup>3</sup>/min, 75 kW Motor cos phi of load/unload
- Compressor 3 variable speed measuring device 400 A clamp 4-25,4 m<sup>3</sup>/min, 132 kW Motorcos phi of load/unload

#### Measuring point 3 (M3) compressors

- Compressor 1+2 load/unload measuring device 200 A clamp 12,5 m<sup>3</sup>/min, 75 kW Motor cos phi of load/unload
- Compressor 3 variable speed measuring device 400 A clamp 4-25,4 m<sup>3</sup>/min, 132 kW Motorcos phi of load/unload

#### Measuring point 4 (M4) compressors

- Compressor 1+2 load/unload measuring device 200 A clamp 12,5 m<sup>3</sup>/min, 75 kW Motor cos phi of load/unload
- Compressor 3 variable speed measuring device 400 A clamp 4-25,4 m<sup>3</sup>/min, 132 kW Motorcos phi of load/unload

### Define analog sensor chanels

AE17...AE20

<ul> <li>Sensor measuring point 1 (M1)</li> <li>chanel 17 Net pressure</li> </ul>	Channel Measuring Application 4mA 20mA [unit] 17 / AE17 [M1 S05] Net pressure Pow Textra Pressure Extra Pressure Current measurement	
<ul> <li>Sensor measuring point 2 (M2)</li> <li>chanel 18 extra pressure</li> </ul>	4mA 20mA [unit] 18 / AE18 [M2 \$05] Extra Pressure	
<ul> <li>Sensor measuring point 3 (M3)</li> <li>chanel 19 extra pressure</li> </ul>	4mA 20mA (unit] 19 / AE19 [M3 S05] Extra Pressure ▼ 0.00 16,00 bar	
<ul> <li>Sensor measuring point 4 (M4)</li> <li>chanel 20 extra pressure</li> </ul>	4mA 20mA [unit] 20 / AE20 [M4 S05] Extra Pressure ▼ 0.00 16.00 bar	
	< <u>Z</u> urück <u>W</u> eiter> Abbrechen	

Data analyse	
<b>F</b> 1	
File : 2007-02-01.mes	
,	
Progress :	
	[Cancel]

8

X



After push OK the data will be calculated and stored in customers

folder.

To select evaluated measuring data klick on File "open" and select a day -Klick on button open

Open						8	? 🔀
<u>s</u> earch in	눱 Siemens-1		•	← 🖻	r 📰 🕈		
	Measuring Point 1 Measuring Point2 Measuring Point3	<ul> <li>2007-02-10.tag</li> <li>2007-02-11.tag</li> <li>2007-02-12.tag</li> </ul>					
	<ul> <li>Measuring Point4</li> <li>2007-01-30.tag</li> <li>2007-01-31.tag</li> <li>2007-02-01.tag</li> </ul>	<ul> <li>2007-02-13.tag</li> <li>2007-02-14.tag</li> <li>2007-02-15.tag</li> </ul>					
õ	<ul> <li>2007-02-02.tag</li> <li>2007-02-03.tag</li> <li>2007-02-04.tag</li> <li>2007-02-04.tag</li> <li>2007-02-04.tag</li> </ul>	1G-Datei					
	<ul> <li>2007-02-0 Größe:</li> <li>2007-02-0 Geänd</li> <li>2007-02-08.tag</li> <li>2007-02-09.tag</li> </ul>	907 KB ert am: 05.03.2010 14:33					
<b>S</b>	10 00 00 00 00 00 00 00 00 00 00 00 00 0						
	Filename 2	007-02-03.tag			•	0	pen
	File type	)ay			•	C	ancel

### Compressor amperé settings of load and unload

With this cnfiguration the program will separate the load and unload time And calculate the air flow, based on compressor load time

- 1. click on button "AN"
- 2. select compressor 1
- 3. set zoom to 1 h





#### Scaling compressor diagram

- Set mouse arrow in diagram
- Klick right
- Scaling flow (m<sup>3</sup>/min
- Click button "apply"

#### Line name

- green = load ampere
- yellow = un-load amperé
  - red = not running amperé



#### Setting for loadkW

- Set green line with your mouse to the beginning load phasis
- If pressure goes higher amperé will encrease

#### RA Compressor 1 Sa, 03.02.2007 120,00 - 12,50 108.00 11.25 96,00 10,00 84.00 8 75 72,00 7,50 6.25 60.00 5,00 48,00 3,75 38,00 2,50 24,00 12,00 1.25 0,00 0,00 23 24 Stoppage [A] : 18.0 Load [A] : 98.6 🔮 Noload (4) : 97.6 Data correction 05.03.2010

#### Setting unload kW

- Set the yellow line with the mouse arrow to beginning unload phasis. Best directly below the green line.
- The unload kW will be calculate propotioatelly to the yellow field



#### Current of not running compressor

- If amperé clamp was connected to the cable who supply the compressor controller it will show some current..
- This is not the current of unload. This is the current of the compressor controller.

#### Current of Compressor controller

• To disable this current of the compressor controller set the mouse arrow to the red line make the setting of current higher that it shows the current line of the compressor controller



### Configuration varaiable speed compressors





#### Scaling the current line

.

•

- Pull the upper green line to the maximum amperé
- Pull the lower green line to the lowest amperé
- The yellow line must be adjusted if the regulated compressor has the function idle running.
- The red line must be adjusted if the regulated compressor shows current in not running position.

#### Scaling diagram

- Set mouse arrow in the diagram
- click right
- Set the max amperé to 160A
- Click on apply





#### Exactly amperé scaling

- Pull the upper green line exactly to the maximum amperé
- Pull the lower green line exactly to the lowest amperé
- Controll the settings over the time of the whole day.



- Zoom to 1 hour fo controlling the Amperé setting.
- After controlling press the button "Data correction"
- The data of all selected files will be calculated with the settings of the compressor.

Data correction	
File :	
2007-01-31.tag	
Progress :	
	Cancel





### Scalling the pressure Diagram

#### 1. open measuring data

- klick on "file" than "open"
- open the file of one day
- klick on the button P (pressure diagramm)

Open		? 🛛
Search in	🗀 Johnson	- 🗢 🗈 💣 🎫
<ul> <li>2006-06-2</li> <li>2006-07-0</li> <li>2006-07-0</li> <li>2006-07-0</li> <li>2006-07-0</li> <li>2006-07-0</li> <li>2006-07-0</li> </ul>	29.tag 2006-07-08.tag 33.tag 2006-07-09.tag 14.tag 2006-07-10.tag 15.tag 06.tag 17.tag	
file name	2006-07-05.tag	Open
file type	Tag	cancel

#### 2. <u>scaling pressure diagramm</u>

- Klick on Button "P"
- Open diagram pressure
- Set mouse arrow in diagram
- Klick right
- Scaling Pmin
- Scaling Pmax
- Click button "apply"



#### 3. <u>definate scale of diagram</u>

- Klick on "Option"
- "Setup analog input"
- Change name of analog input 7
   to "net pressure"



#### Enter system date AE1...AE4 AE5...AE8 AE9...AE12 AE13...AE16 CH1...CH4 CH5...CH8 CH9...CH12 CH13...CH16 Diagram scale Channel AE5 no sensor AE6 no sensor Pmin Designation Pmax [.....] AE7 Net pressure Net pressure 0,00 16,00 bar Designation Fmin Fmax [.....] 15,00 m3/min AE8 Flow Flow hall 5 0,00 OK Cancel Obernehme

### Scaling the Flow diagram

In diesen Masken kann die Benennung der angeschlossen Kompressoren und Analogsensoren, sowie die Skalierung der Diagramme vorgenommen werden

#### 1. scaling flow diagram

- Open flow diagram
- Set mouse arrow in diagram
- Klick right
- Scaling flow (m<sup>3</sup>/min
- Click button "apply"

#### 2. scaling flow diagram

- Klick on "OPTION"
- "presentation of flow diagram"
- Select the different averages like ,real flow data," than 1, 2, 5, 10 minutes



#### 3. definate scale of diagram

- Klick on "Option"
- "Setup analog input"
- Change name of analog input 8
   to "flow measuring"



Parametereingabe												
AE1AE4 AE5AE8 AE9AE12 AE13AE16 K1K4 K5K8 K9K12 K13K16												
			Diagramm SI	kalierung								
Kanal												
AE5	kein Sensor											
AE6	kein Sensor											
		Bezeichnung	Pmin	Pmax []								
AE7	Netzdruck	Netzdruck	8,20	10,00 bar								
		Bezeichnung	Fmin	Fmax []								
AE8	Durchfluss	Analog Eingang 8	0,00	30,00 m3/min								
			OK	Abbrechen Übernehmen								

### Evalating the data





#### Data evaluation

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- Mark the days for evaluation
- Selecting by up to 7 days the diagram show the days in different colors for each day.
- Selecting more that 7 day the diagramm will show only the average of all days together

tomer Data				8
		Electrical Cost/kWh	Currency	
Company	factory	0,100	e	
Site	London			
Compressor Station	West			
Working Days/Year	365			

#### 1st Table "compressor data"

the readings of the compressors are reported as

- m³/min •
- load / unload kW •
- Measuring duration complete
- Running times in % Load –and unload time

#### 2nd Table "measure data"

the individual readings are displayed here

- Motor starts
- Load cycles
- Load, -unload and total kWh
- Produced compressed air in m<sup>3</sup>
- Cost calculation for:
  - Last
  - Leerlauf
  - Gesamt
  - in the given currency

		Compre	ssor Data	(ivieasi	urement r	NO, 19.03	.2007 - 30,	25.03.20	0/)			
	0	Output [r	n3/min]	[kW] L	[kW] Loaded No-loa		Audit Time	Time Run	Loaded		Unloaded	
н	Compressor	min	max	min	max	[kW]	[hh:mm:ss]	[%]	[hh:mm:ss]	[%]	[hh:mm:ss]	[%]
1	Kompressor 1	3,7	14,6	32,60	94,00	0,00	167:46:00	100,00	167:46:00	100,00	00:00:00	0,00
2	Kompressor 2		9,3		60,74	0,00	167:46:00	100,00	167:46:00	100,00	00:00:00	0,00
3	Kompressor 3		18,0		109,26	38,55	167:46:00	68,80	114:51:30	99,51	00:33:50	0,45
4	Kompressor 4		18,0		130,79	41,46	167:46:00	29,28	33:08:30	67,48	15:58:30	32,52
5	Kompressor 5		0,0		0,00	0,00	167:46:00	0,00	00:00:00	0,00	00:00:00	0,00
6	Kompressor 6		0,0		0,00	0,00	167:46:00	0,00	00:00:00	0,00	00:00:00	0,00
7	Kompressor 7		0,0		0,00	0,00	167:46:00	0,00	00:00:00	0,00	00:00:00	0,00
8	Kompressor 8		0,0		0,00	0,00	167:46:00	0,00	00:00:00	0,00	00:00:00	0,00
9	Kompressor 9		0,0		0,00	0,00	167:46:00	0,00	00:00:00	0,00	00:00:00	0,00
0	Kompressor 10		0,0		0,00	0,00	167:46:00	0,00	00:00:00	0,00	00:00:00	0,00
1	Kompressor 11		0,0		0,00	0,00	167:46:00	0,00	00:00:00	0,00	00:00:00	0,00
2	Kompressor 12		0,0		0,00	0,00	167:46:00	0,00	00:00:00	0,00	00:00:00	0,00
3	Kompressor 13		0,0		0,00	0,00	167:46:00	0,00	00:00:00	0,00	00:00:00	0,00
4	Kompressor 14		0,0		0,00	0,00	167:46:00	0,00	00:00:00	0,00	00:00:00	0,00
5	Kompressor 15		0,0		0,00	0,00	167:46:00	0,00	00:00:00	0,00	00:00:00	0,00
0	Kompressor 16		0.0		0.00	0.00	167:46:00	0.00	00:00:00	0.00	00.00.00	0.00

#### Measured Data (Measurement Mo, 19.03.2007 - Su, 25.03.2007)

Produced compressed air in m <sup>3</sup>			Motor	Load	Total Power [kWh]			Total Air	Costs [€]		
Cast calculation for	Ch	Compressor	Starts	Cycles	Loaded	Unloaded	Total	m3	Loaded	Unloaded	Total
	1	Kompressor 1	1	1	11.141,75	0,00	11.141,75	97.555,0	1.114,18	0,00	1.114,18
_ Last	2	Kompressor 2	1	1	10.190,28	0,00	10.190,28	93.611,0	1.019,03	0,00	1.019,03
- Lusi	3	Kompressor 3	3	24	12.549,01	21,74	12.570,75	124.047,0	1.254,90	2,17	1.257,07
- Leerlauf	4	Kompressor 4	38	425	4.334,47	662,27	4.996,74	35.793,0	433,45	66,23	499,68
	5	Kompressor 5	0	0	0,00	0,00	0,00	0,0	0,00	0,00	0,00
- Gesamt	6	Kompressor 6	0	0	0,00	0,00	0,00	0,0	0,00	0,00	0,00
in the diven ourrenov	7	Kompressor 7	0	0	0,00	0,00	0,00	0,0	0,00	0,00	0,00
in the given currency	8	Kompressor 8	0	0	0,00	0,00	0,00	0,0	0,00	0,00	0,00
	9	Kompressor 9	0	0	0,00	0,00	0,00	0,0	0,00	0,00	0,00
	10	Kompressor 10	0	0	0,00	0,00	0,00	0,0	0,00	0,00	0,00
	1.1	K	0		0.00	0.00	0.00	0.0	0.00	0.00	0.00

Line	agrain 2001 Galculation Options 2		
2	B P- V F- T- TA- DP- AN- M R C	< ⇒ Ex	
	Site Da	ata (Mo, 19.03.2007 - Su, 25.03.2007)	
	Company		Firma
	Site		Standort
	Compressor Station		Kompressor Station
	Installed Compressor Capacities	59,9	[m3/min]
	Installed Compressor Power	259.0	IK\A/I

Installed Compressor Fower	239,0	[KVV]
Operating Time Per Annum	365	[days/a]
Electrical Cost	0,1000	[€/kWh]

	Measured Data	(Measurement Mo, 19.03.2007 - Su, 25.03.2007)		
Audit Time			167:46:00	[hh:mm:ss]
Compressed Air Consumption			351.006	[m3]
5				

	Loaded	Unloaded	Total	
Energy Consumption	38.216	684	38.900	[kWh]
Load / Unload Run	98,2	1,8	100,0	[%]
Key Performance Indicator	0,1089	-	0,1108	[kWh/m3]

	Average	Minimum	Maximum	
Compressed Air Consumption	34,9	16,2	57,7	[m3/min]
Power Consumption	150,8	70,1	249,5	[kW]
Net Pressure	7,0	6,7	7,1	[bar]
System Utilisation	58,2	27,0	96,3	[%]

	Compressed Air C	osts				
Compressed Air Consumption Per Annum			18.327.912	[m3/a]		
	Loaded	Unloaded	Total			
Energy Costs Measuring Period	3.822,-	68,-	3.890,-	[€]		
Energy Costs Per Annum	199.567,-	3.551,-	203.118,-	[€]		
	~					
Energy Costs Per m3			0,0111	[€/m3]		
	·					
				Offline	18.06.2007	17:4

### Changing the average of compressed air consumption diagram

If compressor go not more than 2-4 cycles per hour in on load mode it is possible to change the calculation time of compressed air diagram

This Mask shows also the default settings of different sensors



Setup printer

#### SETUP PRINTER

Klick with mouse on diagram printer setup

Select your previous printer



Cancel

#### PAGE SETUP

Klick with mouse on diagram page setup

Set the edge of the page to 10 mm

Default is 25 mm

### PRINT DIAGRAMS

Please select diagram to print

Calculation table

Diagram readiness

🗖 Diagram Netzdruck

Klick on printer and mark the diagrams for printing

Diagram consumption of several days Diagram load-noload energy

## Mounting the Flow Sensor





EIngang	1	2	3	4	5	9	7	8	
Am 0S i9d h9W									Π
Am ≱isd hsW									
Flowsensor									
Temperatur Sensor									
Extra Drucksensor									
Netzdrucksensor									
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									ш
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Motor kVV									Н
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lsminiM - nim∜m									Dat
geregelt									
Last / Leerlauf									
Kompressor Typ oder Sensor Typ									Messkoffer Nr.
Buebuia	-	2	3	4	2	9	7		

Datenliste für die Analog-Messung