

Competence for your Compressed air station...

- optimizes automatically
- self-learning
- easy installation
- easy operation

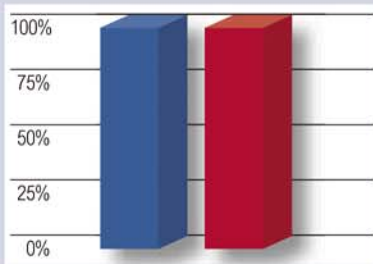
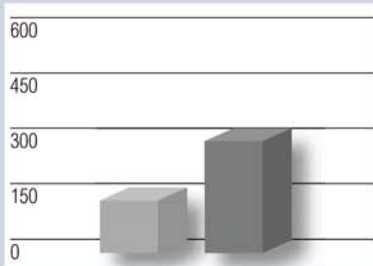


airleader
Compressor management

With the compressed air station that has grown over the years...

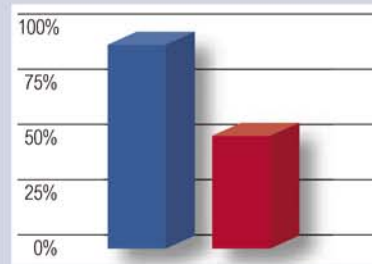
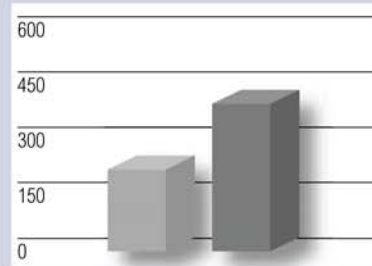
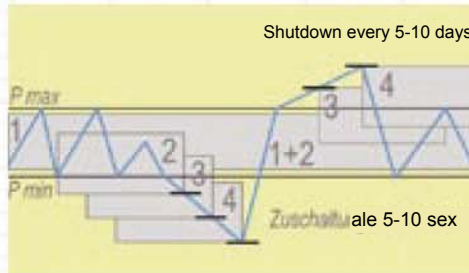
The base load alternating circuit...

Each compressor has its own relatively wide pressure band. System pressure is therefore kept much higher than the air network requires. This arrangement is mainly used for compressors of the same capacity.



The sequence control...

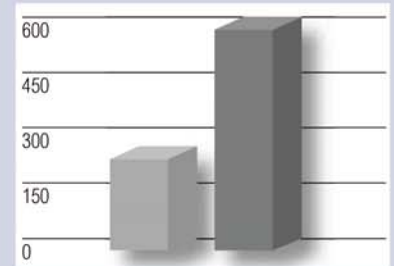
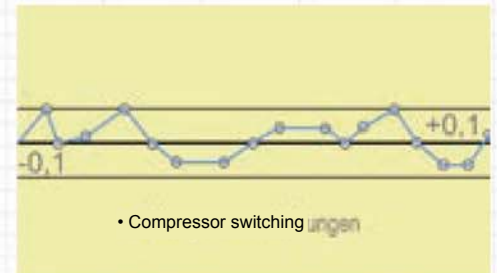
Sequence control combines a narrow pressure band with time-based compressor switching. Compressors are switched on or off when pressure falls below or rises above the set limits. More compressors than necessary are often switched. The sequence can be programmed for different time periods.



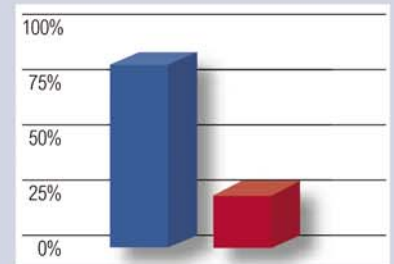
load kW

The pressure band control...

Pressure-band control operates the compressors around a pressure setpoint within a narrow band. Assigning base, medium and peak loads produces rigid sequences selected by a timer. Changes in air demand are not recognised automatically. The narrow band causes frequent load/unload cycles and motor starts.

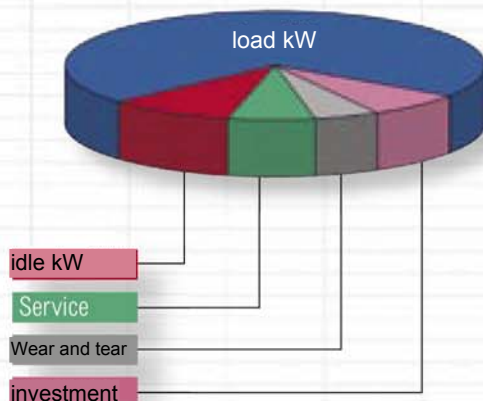


Load changes/day



idle w

Compressed air costs over 10 years



The compressed air costs over 10 years consist of:

- the investment of the compressors
- the ongoing electricity costs
- the service costs
- Motor and compressor bearing wear
- Valve and regulator damage
- Compressed air leakage

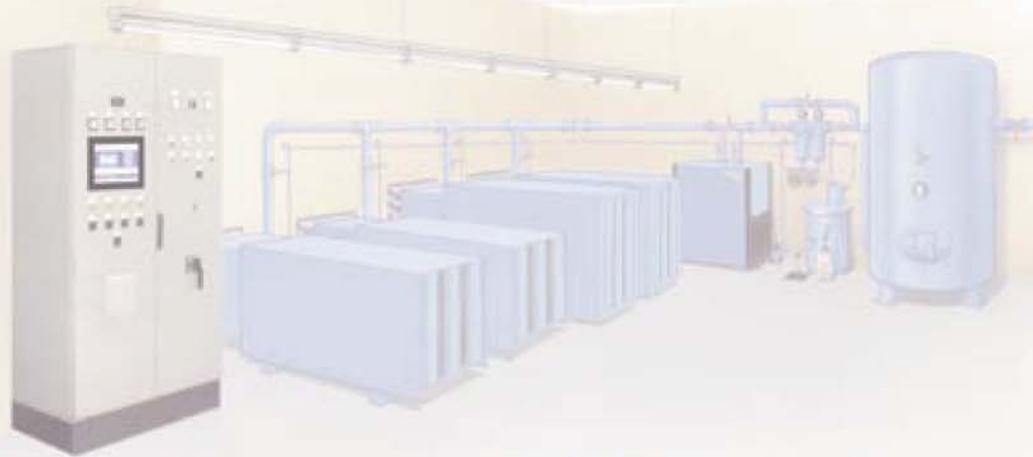
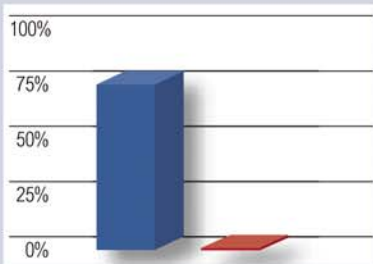
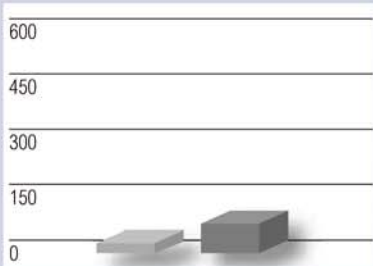
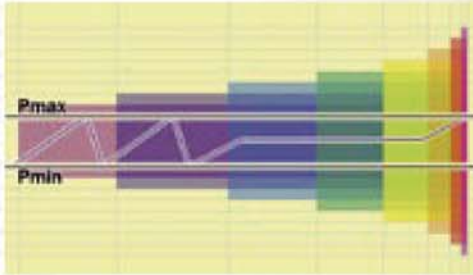
A compressor station that has grown over the years usually contains compressors of different capacities and ages from different manufacturers.

Pressure is kept much higher than production requires. The wide pressure spread responds slowly to demand. Higher compression uses more energy, increases leakage and creates artificial demand.

... save money immediately with airleader!

Airleader compressor management

The eight-stage, self-learning trend calculation continuously calculates air demand using time windows of different lengths. This allows the controller to anticipate demand changes and adjust compressor operation dynamically.



airleader is efficient!

Payback within weeks or a few months follows from the control method.

The intelligent manager for up to 16/32 compressors, including multiple variable-speed compressors.

airleader brings added value!

The service life of inlet regulators, air ends, contactors and motors at least doubles.

Service costs are incurred for actual loaded operating hours. The maintenance budget lasts considerably longer.

This is your win!

Airleader continuously adapts the compressors to current demand, producing only the compressed air required by production.

Particularly low switching frequency
Airleader starts where others leave off.
Extends the service life of mechanical compressor components.

Particularly low energy costs
Continuous demand calculation keeps the combination of compressor capacities efficient.

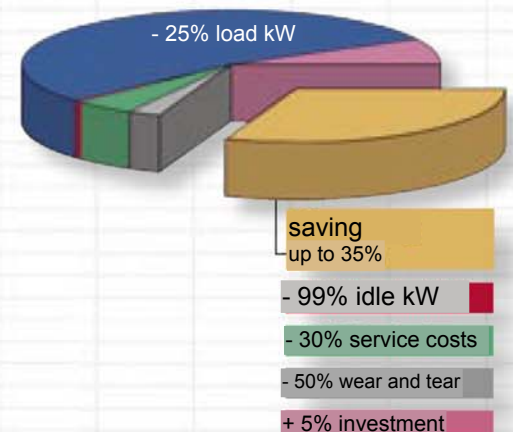
An unloaded compressor consumes 25-35% of full-load power without producing air. Frequent starts, stops and load changes imposed by fixed timing and sequences stress the bearings, shorten compressor life and increase maintenance and service costs.

Sequence and pressure-band control reduce loaded-operation costs by lowering pressure and using a common pressure band for all compressors.

Time-based compressor sequences can reduce unloaded energy use slightly. However, when demand changes, the system does not automatically select a different profile.

Grouping compressors within a narrow pressure band and switching them on a timer increases switching frequency, motor starts, service costs and bearing wear.

Possible savings:



You get these advantages from airleader...

1. Save money immediately...

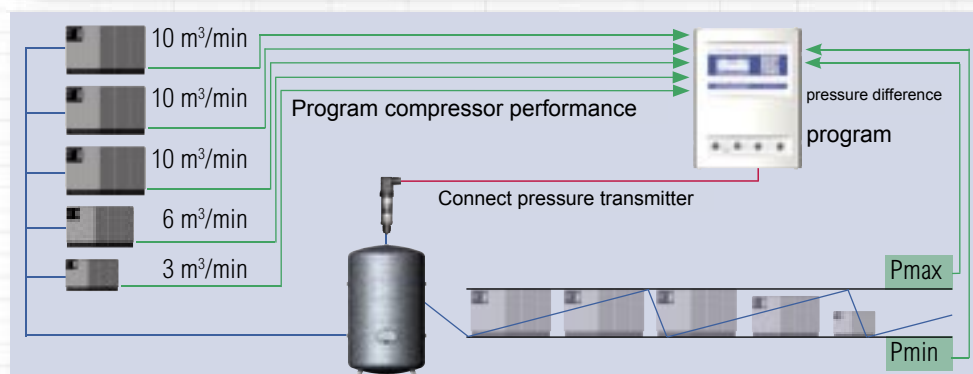
Which compressor rating saves the most idle energy?

 100%	 100%	 100%	 100%	 100%	To the 100% compressors Services
 100%	 100%	 100%	 100%	 100%	
 50%	 50%	 66%	 50%	 50%	More possible load share of Total station
 25%	 33%	 30%	 20-75%	 30%	
75-85%	85-90%	88-94%	97-99,5%	99,9%	

Whatever the compressor combination, Airleader finds the best operating point within a narrow pressure band. Better capacity increments reduce motor starts and load/unload changes.

Up to two variable-speed compressors can be connected. Airleader selects the appropriate combination.

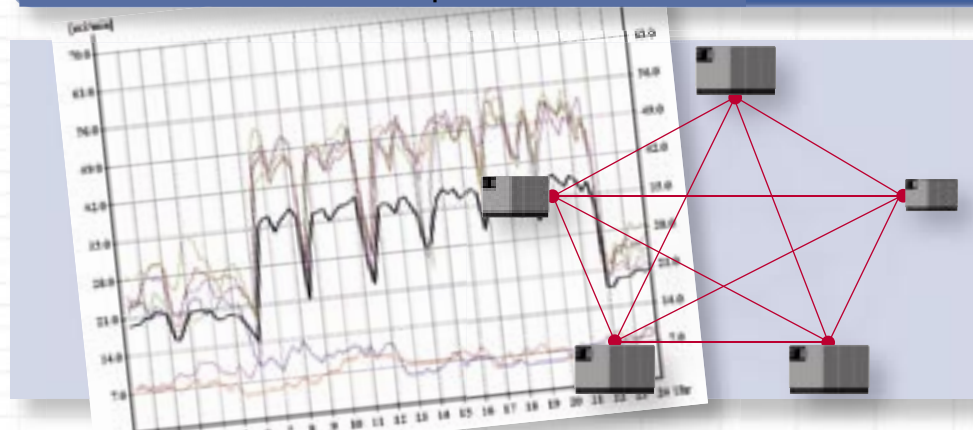
2. Simply program the compressor performance and pressure difference...



Airleader combines compressors of different sizes into one system that automatically adapts to production and current air demand.

Only the most efficient compressor combination produces the air required by production, regardless of manufacturer or capacity.

3. Flexible use of the compressors...



Fixed sequences are no longer required. Production demand determines the most appropriate combination, with minimal switching between the available capacity increments. Compressors of equal capacity receive equal operating hours.

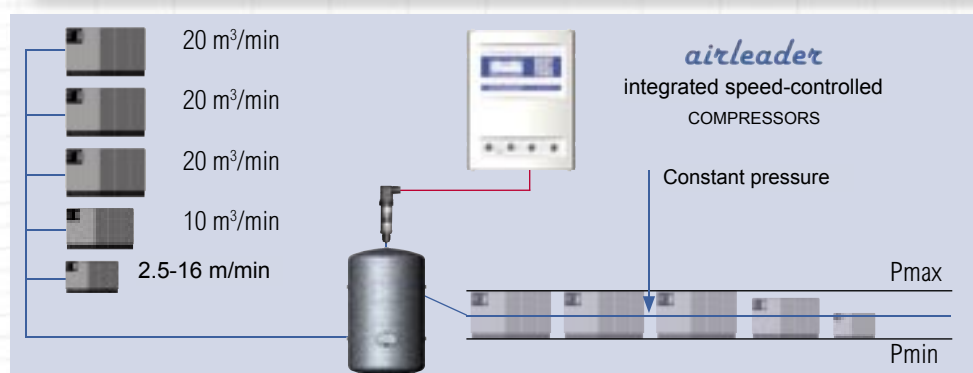
Every compressor can:

- Base load - peak load - or promote alone

Energy saving through:

- Pressure reduction and idle cost optimization

4. Always switches the correct compressors to the speed-controlled compressors...



The control strategy adds or removes compressors smoothly within the pressure band as demand changes. A low switching frequency protects compressors and extends their service life.

The freely programmable control range keeps the variable-speed compressor in its efficient operating range and avoids excessive power consumption caused by an unsuitable speed range.

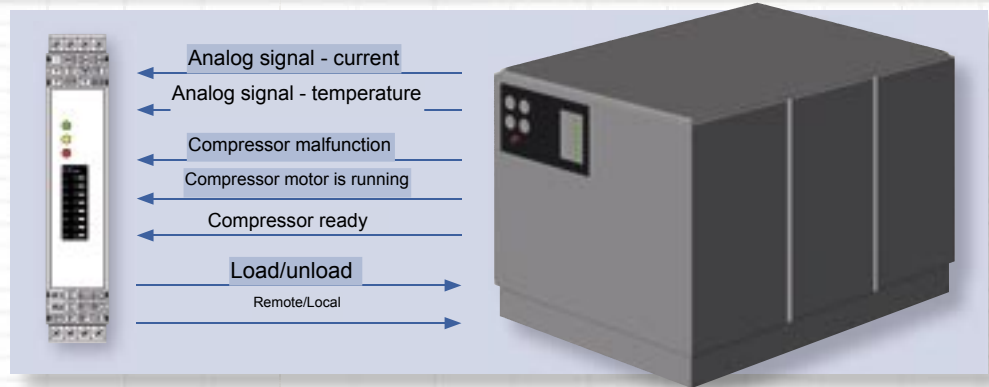
...plus the integration of all additional devices!

5. Easy installation...

Program a few parameters; Airleader determines the remaining settings automatically.

Connect compressors and compressed-air equipment from different manufacturers using a two-wire cable.

A universal connection module in each device provides preconfigured analogue and digital ports for straightforward connection of different makes.



6. Dryers, filters, condensate drains...

Connect dryers, filters, condensate drains and similar devices to the digital inputs of the connection modules. Configure each input as a fault or operating-status signal for a quick overview of station status.

All states are stored in the Airleader long-term archive and can be viewed in a browser.



7. Sensors with analog output...

Connect flow, pressure dew point, temperature, current and pressure sensors to monitor the system. Measure, total and allocate compressed-air use separately for individual departments.

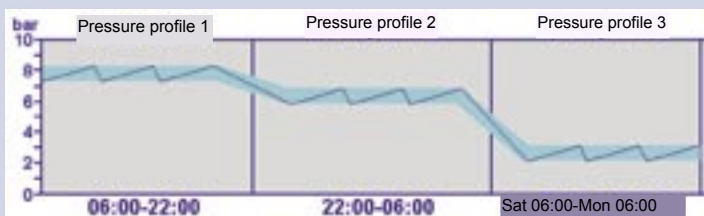
Each analogue input has an associated digital output that triggers an alarm when its limit is exceeded, for example for compressor-room temperature, air moisture or filter differential pressure.



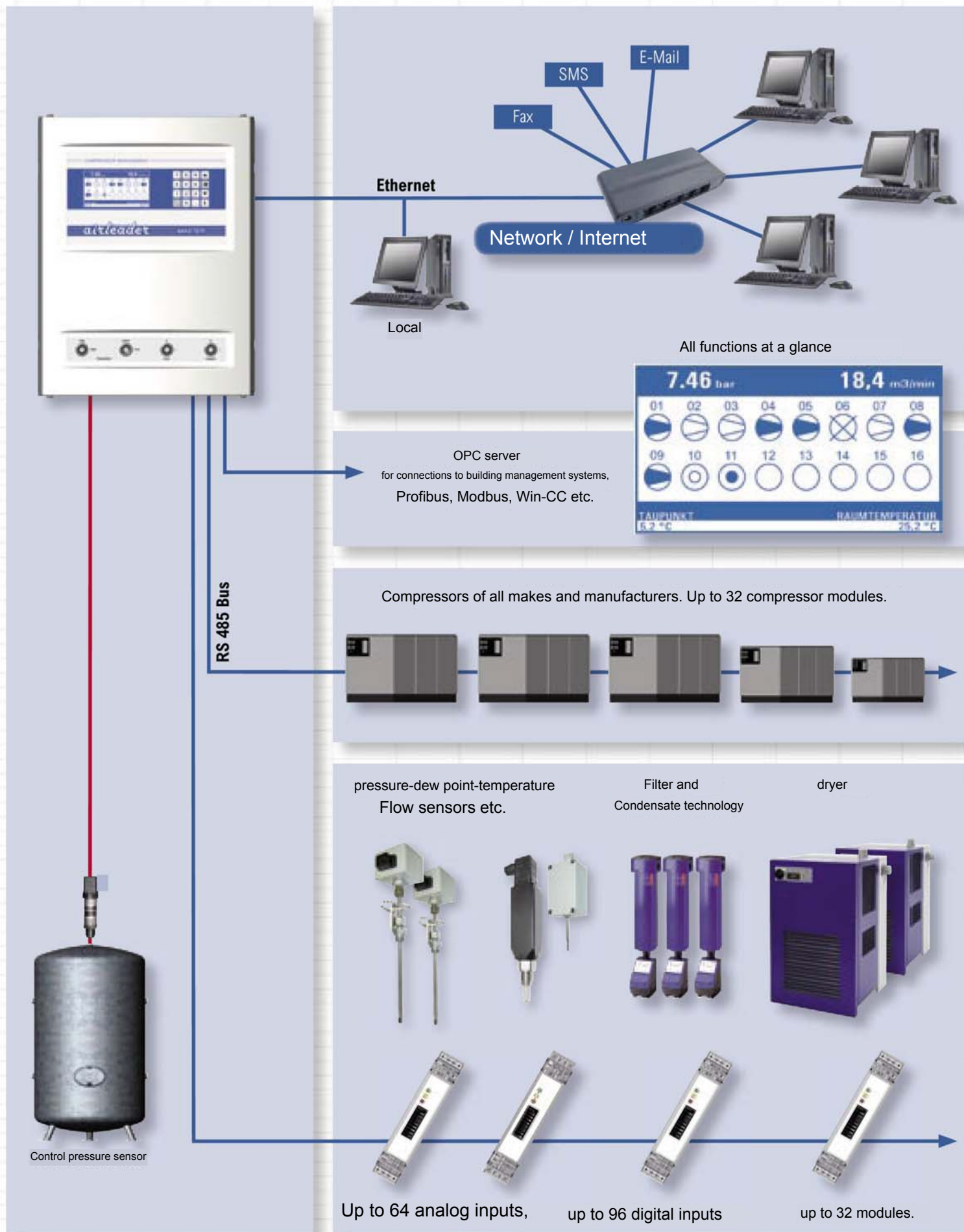
8. Real-time timer for different rankings and pressure profiles...

The real-time timer can select three additional pressure profiles and three priority profiles. Where compressors have heat recovery, they can operate at different priority levels alongside automatic demand-based optimisation. Pressure and priority profiles can also be selected directly, allowing quick pressure changes together with a priority change.

Rank	Ranking 1	Ranking 2	Ranking 3
1	Compressor 1 + 6	Compressor 5 + 6 + 4	Compressor 3 + 5 + 6
2	Compressor 2 + 4 + 5	Compressor 3 + 2	Compressor 4 + 2
3	Compressor 3	Compressor 1	Compressor 1



Absolutely variable and open to everything...



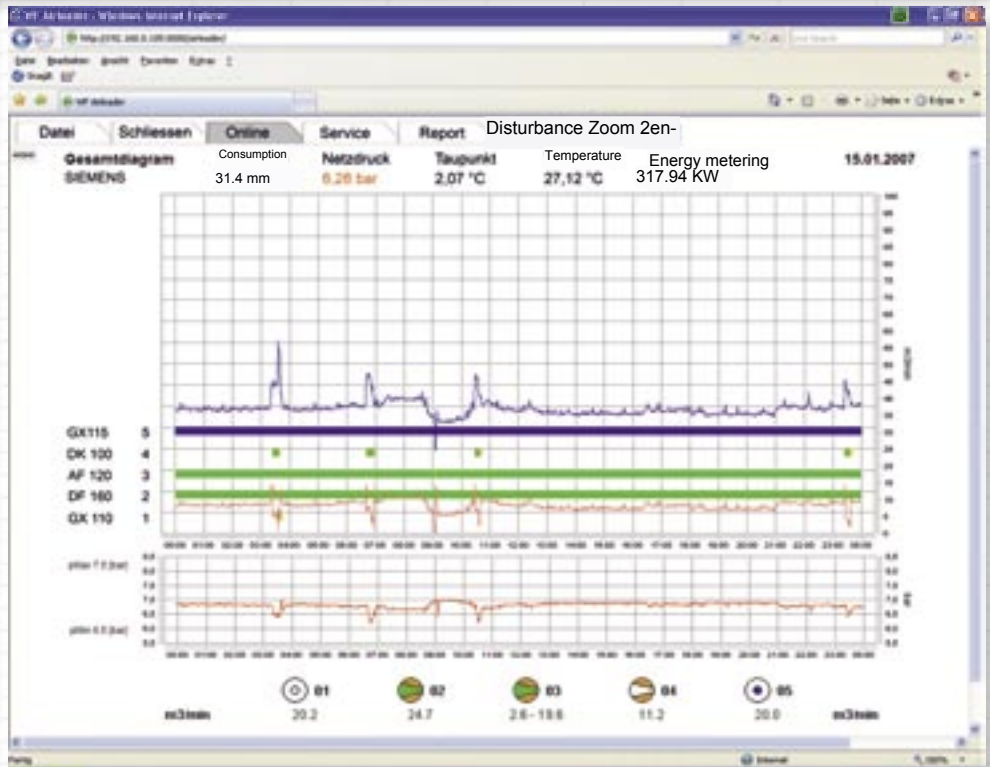
... with online visualization at its best!

Everything important at a glance...

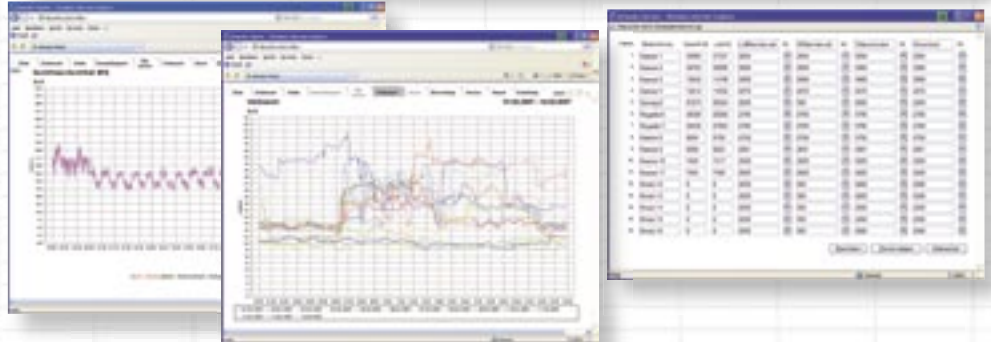
The main online view shows air consumption, pressure and compressor states: loaded, unloaded, fault, ready, off, and delivery rate of variable-speed compressors.

CHARTS

- Total diagram with consumption
 - Load time diagram
 - diagram
 - Readiness diagram
 - Fault message diagram
 - Consumption diagram
- Compressors power diagram
 - "GX 115"
 - "DK 100"
 - "AF 120"
 - "DF 160"
 - "GX 110"
- Kompressoren Temperaturdiagramm
 - "GX 115"
 - "DK 100"
 - "AF 120"
 - "DF 160"
 - "GX 110"
- Druckdiagramm
 - I.A/1 "System pressure"
- Dew point diagram
 - A/1 "Hall 1"
 - "Station 1"
 - "Station 3"
- Temperature chart
 - A/3 "Compressor"
 - "Station 2"
 - "Station 4"
- Electricity diagram
- Energy diagram
 - A/4 "current peak"
- Flow diagram
- ... Diagram of external digital signals



Clear selection...



Compare a complete week at high resolution. Data is calculated ten times per second and shown in charts for precise evaluation.

Zoom every curve down to a one-minute interval to identify and investigate brief peaks.

Temperature, pressure dew point, flow, current and other sensors with a 4-20 mA output can be connected and displayed at high resolution.

Limit violations generate messages, optionally by email, fax or SMS.

Analogue sensors are displayed in clear groups. Weekly and monthly charts are generated automatically and are ready to use.

Select charts from the selection box. Display the functions together or each chart separately.

Any number of users can access the web visualisation without a loss of speed.

COMPRESSOR DATA AND ENERGY CALCULATION														01/11/2007 to 01/17/2007								
Spezifische Leistung		7,61347		kW/m³/min		kWh		0,080		€		Lastkosten		99,64		%						
Spezifische Leistung		0,12689		kW/m³		P-min		6,5		bar		Leerlaufkosten		0,36		%						
Druckluftkosten		0,01015		€/m³		P-max		7,0		bar		Total costs		3590,28		€						
channel	Kompressor	m³/min		Last kW		kW		Last		Leerlauf		Utilization % switching compressed air				Gesamt kW		Gesamtkosten €				
		min	max	min	max	Unloaded	h	min	h	min	Last	motor:	load	m³	Load	Idle	Total	Load	Idle	In total		
1	GX 100	4,8	20,6		118,0	34,2	20	58	1	40	92,6	15	15	25915	2474	57	2531	197,93	4,56	202,49		
2	DF 160		24,7		145,0	41,3	147	50	0	42	99,5	7	7	219089	21436	29	21465	1714,87	2,31	1717,18		
3	AF 120	2,6	19,6	20,3	122,0	4,5	166	54	0	9	100,0	19	19	104877	20362	1	20362	1628,94	0,05	1629,00		
4	DK 100		11,2		79,0	26,4	5	39	2	48	66,9	45	48	3797	446	74	520	35,71	5,91	41,62		
5	GX 115		20,0		116,0	31,7	0	0	0	0	0,0	0	0	0	0	0	0	0,00	0,00	0,00		
SUMME												86	89	353678	44718	161	44879	3577,44	12,84	3590,28		

Specific performance online. With Airleader see immediately whether you are concerned about energy costs run under the rudder and are automatically notified. correct.

Energy balance free of charge • Load and idle time tens • kWh consumed • m produced? • Specific performance

- Energy costs in €
- Moto starts + load changes.

Long-term monitoring is standard. The one Built memory has a storage capacity of at least 2 years (with 8 compressors).

Statistics made easy. The load/idle The graphic clearly shows the savings effect. Simply select the desired period with a click of the mouse choose.

And that's what comes out of Airleader!

Just looking at the energy saving potential of the Airleader is worth a moment's consideration.
Calculate roughly your energy costs for producing compressed air:

Your possible savings potential: Rough estimate!

		Your company:	Compan y W	Compan y X	Compan y Y	Compa ny Z
A Operating time per annum	Bh/a	=>	2000	4000	6000	8760
B Installed compressor capacity:	kW	=>	100	200	250	500
C Average Utilization:	%	=>	75%	75%	75%	75%
D Assumed DL key figure	kWh/m ³	=>	0,135	0,135	0,13	0,12
E => Air requirement per year	million m	= 1)*	1,11	4,44	8,65	27,38
F Savings potential:	%	=>	25%	25%	25%	25%
G electricity price	€/kWh	=>	0,075	0,075	0,075	0,075
Energy savings per year:	€/year	= 2)*	2.813 €	11.250 €	21.094 €	61.594 €

1)* = A x B x C / D / 1,000,000

2)* = A x B x C x F x G 7

Added to this are the costs and savings
for service and maintenance of the compressors.

Why pay too much? The right Airleader for every need.

Airleader grows with your compressed air station and is upwards and downwards compatible!



Specification:

	<i>airleader</i> CN	<i>airleader</i> Master module
Number of connectable compressor modules	32	16
Number of speed-controlled compressors	2	2
Number of connectable analog modules for sensors and accessories	32	8
Number of maximum possible analog inputs	132	52
Display	15" color touchscreen	LCD display 240x128 pixels
Industrial housing for wall mounting L x W x D mm	600 x 800 x 250	380 x 480 x 130
Storage capacity for detailed condition history and statistical data (In addition to online visualization via PC or Internet using a browser)	> 20 years (20 GB)	> 2 years (1 GB)
Interfaces	4 x RS 485 1*Ethernet	4 x RS 485 1*Ethernet

Your specialist
company:



WF STEUERUNGSTECHNIK GMBH

Zeppelinstr. 7
75446 Wiernsheim
Tel. +49 (0) 7044 / 911 100
Fax +49 (0) 7044 / 57 17
E-Mail: airleader@t-online.de