



DS 500 -

Intelligent chart recorder for compressed air and gases

Measurement - control - indication - alarm - recording - evaluation



Advantages at a glance:

- Clear layout: 7" color screen with touch panel...
- Versatile: Up to 12 optional sensors can be connected...
- Suitable for industrial applications: Metal housing IP 65 or panel mounting
- Data available through world wide web: Network-compatible and remote transmission via webserver
- Intelligent: Daily/weekly/monthly reports...
- Mathematical function for internal calculations
- Totalizer function for analogue signals
- ... Saves time and costs during installation

DS 500 - the intelligent chart recorder of the next generation

From recording of the measured data, indication on a big color screen, alerting, storage up to remote read-out via webserver... this is all possible with DS 500. By means of the webserver software alarms can be sent via SMS or e-mail.

All measured values, measured curves and threshold exceeding are indicated. The curve progressions from the beginning of the measurement can be viewed by an easy slide of the finger.

Daily/weekly/monthly reports with costs in € and counter reading in m³ for each consumption sensor are completing the sophisticated system concept. The big difference to ordinary paperless chart recorders reveals in the easy initiation and in the evaluation of the measured data. All sensors are identified directly and powered by DS 500. Everything is matched and tuned.

Mathematical function for internal calculations, e.g. the typical figures of a compressed air plant:

- costs in € per generated m³ air
- kWh/m³ generated air
- consumption of single lines including summation

Totalizer function for analogue signals (e.g. 0/4...20 mA, 0...10 V). In case of third-party sensors which e.g. only give a 4...20 mA signal for the actual flow in m³/h a total counter reading in m³ can be generated by means of the totalizer function.

No time consuming studying of the instruction manual... this saves time. Internal voltage supply of all sensors, no wiring of external mains units ... this saves additional costs.



Flow sensors for compressed air and gases

- Installation and removal under pressure via standard 1/2" ball valve
- A safety ring avoids the uncontrolled ejection in case of installation/removal under pressure
- Usable for different gases: compressed air, nitrogen, argon, CO₂, oxygen...



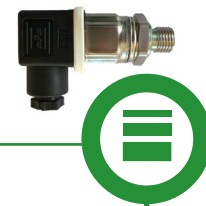
Dew point sensors

- Extremely long-term stable
- Quick adaption time
- Large measuring range (-80° to +20° Ctd)
- For all driers: Desiccant driers, membrane driers, refrigeration driers
- Easy installation under pressure via the standard measuring chamber with quick coupling



Pressure sensors

- Large selection of pressure sensors with different measuring ranges for each measuring purpose
- Quick installation under pressure by quick coupling
- Pressure sensors 0 - 10/16/40/100/250/400/600 bar overpressure
- Pressure sensors -1 - +15 bar (under-/overpressure)
- Differential pressure 0...1,6 bar
- Absolute pressure 0 - 1.6 bar (abs.)



- Large selection of temperature sensors e.g. for measurement of the ambient temperature or gas temperature
- Pt100 (2-wire or 3-wire)
- Pt1000 (2-wire or 3-wire)
- KTY sensors
- Temperature sensors with measuring transducer (4-20 mA output)



Temperature sensors



- Monitoring the compressed air according to ISO 8773
- Residual oil, particle, residual moisture



Compressed air quality measurement



- CS ENERIUM 30 current/effective power meters for panel mounting with external current transformer for big machines and plants
- External current transformers for encompassing the phases (max. 2000 A)
- Measures KW, kWh, cos phi, kVar, kVA
- Data transfer DS 500 via Modbus



Current/effective power meters

By means of the intelligent chart recorder DS 500, all measuring data of a compressor station can be recorded, indicated and evaluated.

At 12 freely assignable sensor inputs all our sensors can be connected as well as any optional third-party sensors and meters with the following signal outputs:

4-20 mA, 0-20 mA I 0-1 V / 0-10 V / 0-30 V | Pt 100 (2- or 3-wire), Pt 1000 (2- or 3-wire), KTY | pulse outputs (e.g. of gas meters) frequency output | Modbus protocol.



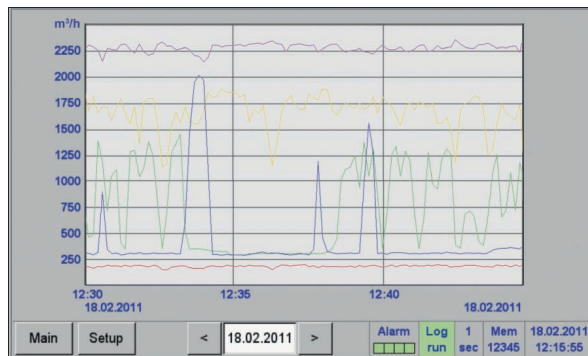
Measured values, statistics, curves with the 7" color screen touch panel

A1 Compressed Air		A2 Compressed Air		A3 Compressed Air		A4 Compressed Air	
<input checked="" type="checkbox"/> A1a	237.7 m³/h	<input checked="" type="checkbox"/> A2a	729.702 m³/h	<input checked="" type="checkbox"/> A3a	537.0 m³/h	<input checked="" type="checkbox"/> A4a	254.7 m³/h
<input checked="" type="checkbox"/> --	34106 m³	<input checked="" type="checkbox"/> --	13423271 m³	<input checked="" type="checkbox"/> --	155132 m³	<input checked="" type="checkbox"/> --	55234063 m³
B1 Nitrogen		B2 Nitrogen		B3 Nitrogen		B4 Nitrogen	
<input checked="" type="checkbox"/> B1a	337.7 ltr/min	<input checked="" type="checkbox"/> B2a	657.7 ltr/min	<input checked="" type="checkbox"/> B3a	15.7 ltr/min	<input checked="" type="checkbox"/> B4a	237.7 ltr/min
<input checked="" type="checkbox"/> --	27734 ltr	<input checked="" type="checkbox"/> --	240041 ltr	<input checked="" type="checkbox"/> --	34131 ltr	<input checked="" type="checkbox"/> --	235322 ltr
C1 Oxygen		C2 Oxygen		C3 Oxygen		C4 Oxygen	
<input checked="" type="checkbox"/> C1a	17.7 ltr/min	<input checked="" type="checkbox"/> C2a	37.7 ltr/min	<input checked="" type="checkbox"/> C3a	223.7 ltr/min	<input checked="" type="checkbox"/> C4a	75.8 ltr/min
<input checked="" type="checkbox"/> --	4080 ltr	<input checked="" type="checkbox"/> --	234108 ltr	<input checked="" type="checkbox"/> --	3749 ltr	<input checked="" type="checkbox"/> --	43584 ltr

Zurück Virtuelle Kanäle Alarm Lg.stop days, inte... 24.03.2014
Rp.run 16:41:52

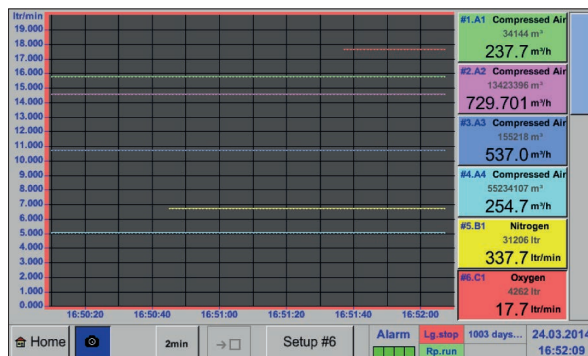
Real time measured values

All measured values can be seen at a glance. Threshold exceeding are indicated in red color. A „measuring site name“ can be allocated to each sensor.



Graphic display

This display replaces the former evaluation of ordinary paper chart recorders and offers lots of advantages. The time axis can be moved by a finger slide. The „zoom function by finger movement“ which enables an analysis of peak values is unique.



Actual measurement values and graphic

Additionally to the measurement curves the real time value is indicated as well.

*** Consumption report ***

Month/Year	<A1> Hall 1.1 compressed air					Total
	Consumption per month m³	Costs €	max value m³/h	min value m³/h	average m³/h	€
2010 May	7257	109	3.7	35.8	15.8	308
2010 June	9530	143	3.8	36.1	18.9	402
2010 July	7325	110	3.9	37.2	14.5	327
2010 August	8099	121	3.9	37.1	16.1	353
2010 September	7842	118	3.9	36.8	15.6	367
2010 October	6167	93	3.9	37.3	12.2	291
2010 November	9030	135	3.9	37.5	17.9	311
2010 December	9062	136	3.9	37.5	18.0	388
2010 Total	97953	1469	3.8	37.1	16.3	4164
2011 January	8880	133	3.5	37.7	17.6	412

Home Day/Week Week Month/Year

Statistics and reports

Different to ordinary chart recorders the DS 500 offers not only the recording of the measured data but also the evaluation of all flow sensors optionally as daily/weekly/monthly report at the push of a button.

It is no longer necessary to read-out the counter and transfer the values manually into a list. The reports can be imported to every PC into Excel® by means of a USB stick and after that they can be printed out without any additional software. This saves time and money and simplifies the evaluation enormously.

Technical data of the DS 500

TECHNICAL DATA DS 500	
Dimensions of housing:	280 x 170 x 90 mm, IP 65
Connections:	18 x PG 12 for sensors and supply
Version panel mounting:	Cutout panel 250 x 156 mm
Weight:	7.3 Kg
Material:	Die cast metal, front screen polyester
Sensor inputs:	<ul style="list-style-type: none"> • 4/8/12 sensor inputs for analogue and digital sensors freely allocatable. See options • Digital CS sensors for dew point and consumption with SDI interface FA/VA series, digital third-party sensors RS 485 / Modbus RTU, other bus systems realizable on request. • Analogue CS Sensors for pressure, temperature, clamp-on ammeters pre-configured. • Analogue third-party sensors 0/4...20 mA, 0...1/10/30V, pulse, Pt 100 / Pt 1000, KTY
Power supply for sensors:	24 VDC, max. 130 mA per sensor, integrated mains unit max. 24 VDC, 25 W. In case of version 8/12 sensor inputs, 2 integrated mains units each max. 24 VDC, 25 W.
Interfaces:	USB stick, Ethernet / RS 485 Modbus RTU / TCP, SDI other bus systems on request, WEB server optionally
Outputs:	<ul style="list-style-type: none"> • 4 relays (changeover contact 230 VAC, 6 A), alarm management, relays freely programmable, collective alarm • Analogue output, pulse in case of sensors with own signal output looped, like e.g. VA/FA series
Memory card:	Memory size 4 GB SD memory card standard
Power supply:	100...240 VAC / 50-60 Hz, special version 24 VDC
Color screen:	7" touch panel TFT transmissive, graphics, curves, statistics
Accuracy:	see sensor specifications
Operating temperature:	0...50°C
Storage temperature:	-20...70°C
Optionally:	Webserver
Optionally:	Option „energy and flow report“ statistics, daily/weekly/monthly report

DESCRIPTION	ORDER-NO.	INPUT SIGNALS
DS 500 - intelligent chart recorder in basic version (4 sensor inputs)	0500 5000	Current signal: (0...20mA/ 4...20mA) internal or external power supply Measuring range 0...20 mA Resolution 0.0001 mA Accuracy $\pm 0.03 \text{ mA} \pm 0.05 \%$ Input resistance 50 Ω Voltage signal: (0...1 V) Measuring range 0...1 V Resolution 0.05 mV Accuracy $\pm 0.2 \text{ mV} \pm 0.05 \%$ Input resistance 100 k Ω Voltage signal: (0...10 V / 30 V) Measuring range 0...10 V Resolution 0.5 mV Accuracy $\pm 2 \text{ mV} \pm 0.05 \%$ Input resistance 1 M Ω RTD Pt 100 Measuring range -200...850°C Resolution 0.1°C Accuracy $\pm 0.2^\circ\text{C}$ (-100...400°C) $\pm 0.3^\circ\text{C}$ (further range) RTD Pt 1000 Measuring range -200...850°C Resolution 0.1°C Accuracy $\pm 0.2^\circ\text{C}$ (-100...400°C) Pulse Measuring range min. pulse length 500 μs frequency 0...1 kHz max. 30 VDC
Option: 4 additional sensor inputs for DS 500	Z500 5001	
Option: 8 additional sensor inputs for DS 500	Z500 5002	
Option: Integrated webserver	Z500 5003	
Option: „energy and flow report“ statistics, daily/weekly/monthly report	Z500 5004	
Option: version for panel mounting	Z500 5006	
Option: power supply 24 VDC (instead of 100...240 VAC)	Z500 5007	
Option: „mathematics calculation function“ for 4 freely selectable „virtual“ channels, (mathematical functions: addition, subtraction, division, multiplication)	Z500 5008	
Option: „Totalizer function for analogue signals“	Z500 5009	
External Gateway Profibus	Z500 3008	
CS Basic – data evaluation graphically and in tabular form - reading of the measured data via USB or Ethernet, license for 2 workstations	0554 8040	
CS Network - Energy Monitoring with Client / Server Solution (Max. 20 measured values of different sensors / devices)	0554 8041	
CS Network - Energy Monitoring with Client / Server Solution (Max. 50 measured values of different sensors / devices)	0554 8042	
CS Network - Energy Monitoring with Client / Server Solution (Max. 100 measured values of different sensors / devices)	0554 8043	
CS Network - Energy Monitoring with Client / Server Solution (Max. 200 measured values of different sensors / devices)	0554 8044	

Matching sensors can be found on pages 16 to 18