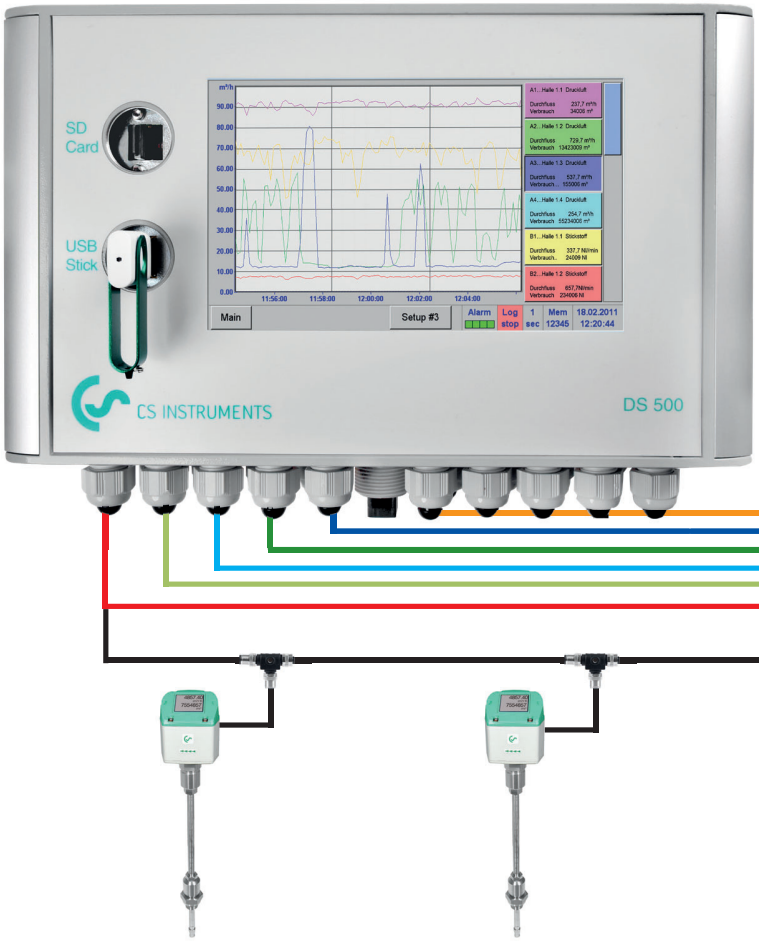
DS 500 - Intelligent chart recorder for compressed air and gases

Measurement - control - indication - alarm - recording - evaluation



Advantages at a glance:

- **Clear layout:** 7" color screen with touch panel.
- **Versatile:** 4, 8 or 12 sensor inputs. Up to 12 analog sensors or up to 40 digital sensors (Modbus RTU).
- **Suitable for industrial applications:** Metal housing IP 65 or panel mounting.
- **Data available remotely:** Network-compatible and remote transmission via webserver
- **Mathematical function:** For internal calculations
- **Totalizer function:** For analog signals
- **Saves time and costs during installation**
- **Simple:DS 500 provides low voltage power to the sensors**

DS 500 - the intelligent chart recorder of the next generation

Recording of the measured data, indication on a big color screen, alerting, storage, and optional remote read-out via webserver.

All measured values, data curves and threshold value exceedances are indicated. The curve progressions from the beginning of the measurement can be viewed by a slide of the finger

The big difference to ordinary paperless chart recorders reveals itself in the easy initiation and in the evaluation of the measured data. All sensors are identified directly and powered by the DS 500.

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

- costs in $ per generated CFM air
- kWh/CF generated air
- consumption of single lines including summation

Totalizer function for analog 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 cfm, a total counter reading in CF can be generated by means of the Totalizer function.

Internal voltage supply to the sensors, no wiring of external mains units

Flow meters for compressed air and gases

- Installation and removal under pressure via standard 1/2" ball valve
- A safety ring prevents 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 (-112 to 68 °Ftd)
- For all dryers: (e.g. Adsorption dryers, membrane dryers and refrigeration dryers)
- Easy installation under pressure via the measuring chamber with quick coupling

Pressure sensors

- Large selection of pressure sensors with different measuring ranges.
- Quick installation under pressure via quick coupling

- 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)
- Temperature sensors with measuring transducer (4-20 mA output)

Temperature sensors

- Monitoring of compressed air quality according to ISO 8573
- Residual oil, particles and moisture

Compressed air quality measurement

- CS PM 5110 current/effective power meters for panel mounting
- External current transformers for encompassing the phases (max. 2000 A)
- Measures kW, kWh, Power Factor, kVar, kVA
- Data transfer DS 500 via Modbus

Current/effective power meters

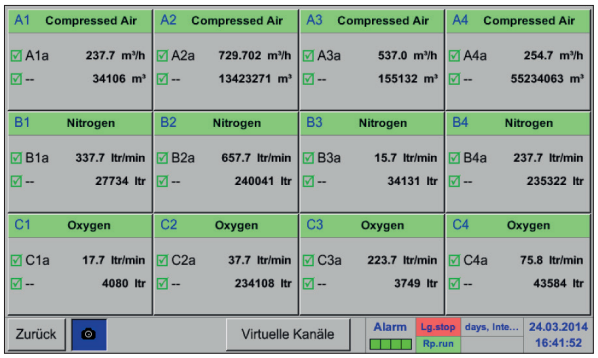
By means of the intelligent chart recorder **DS 500**, all measuring data of a compressor station can be recorded, indicated and evaluated.

At **12 freely assignable sensor inputs**, all CS 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 **I** Pt 100 (2- or 3-wire), Pt 1000 (2- or 3-wire), pulse outputs (e.g. of gas meters) **I** Modbus protocol.

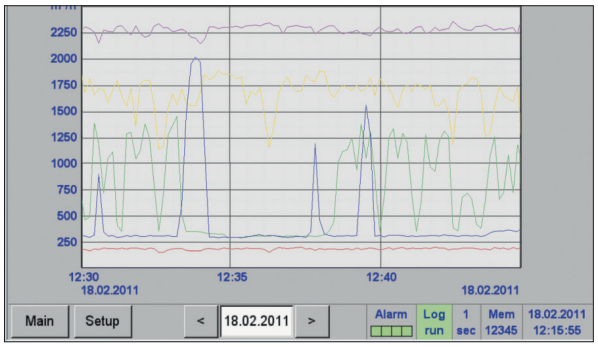
Chart recorder / Logger

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



Actual measured values

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

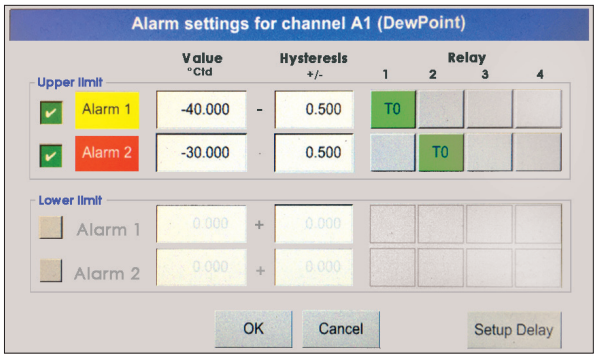


Graphic display

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 allows for an analysis of peak values is unique.

Actual measured values and graphic

Additional to the measurement curves, the current measured values are indicated as well.



Adjustment of the alarm relays

Each one of the four alarm relays can be allocated individually to a connected sensor. The alarm thresholds and the hysteresis can be freely adjusted.
New: It is possible to set an alarm delay for each alarm relay so that the relay is only triggered after a set period of time.

Technical data of the DS 500

TECHNICAL DATA DS 500	
Dimensions of housing:	11.0 x 6.7 x 93.4 Inches, (IP 65)
Connections:	18 x PG for sensors and supply
Version panel mounting:	Cutout panel 9.8 x 6.1 Inches
Weight:	7.7 lbs
Material:	Die cast metal, front screen polyester
Sensor inputs:	• 4/8/12 sensor inputs for analog 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. • Analog CS Sensors for pressure, temperature, clamp-on ammeters pre-configured. • Analog third-party sensors 0/4...20 mA, 0...1/10/30 V, pulse, Pt 100 / Pt 1000, KTY
Voltage supply for sensor:	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, webserver optional
Outputs:	• 4 relays (changeover contact 230 VAC, 6 A), alarm management, relays freely programmable, collective alarm • Analog output, pulse in case of sensors with own signal output looped, such as e.g. VA/FA series
Memory card:	16 GB Micro SD card
Power supply:	100...240 VAC / 50-60 Hz, special version 24 VDC
Colour screen:	7" touch panel TFT transmissive, graphics, curves, statistics
Accuracy:	see sensor specifications
Operating temperature:	32...122 °F
Storage temperature:	-4…158 °F
Optional:	Webserver

DESCRIPTION	ORDER NO.
DS 500 - intelligent chart recorder in basic version (4 sensor inputs)	0500 5000
Option: 4 additional sensor inputs for DS 500 V2	Z500 5501
Option: 8 additional sensor inputs for DS 500 V2	Z500 5502
Option: Integrated webserver	Z500 5003
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 channels, (virtual channels): addition, subtraction, division, multiplication	Z500 5008
Option: “Totalizer function for analog signals”	Z500 5009
External Gateway Profibus for connecting an integrated RS 485 interface	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 20 to 23

INPUT SIGNALS	
Current signals	(0…20 mA/ 4…20 mA)
Internal or external power supply	
Measuring range	0…20 mA
Resolution	0.0001 mA
Accuracy	± 0.03 mA ± 0.05 %
Input resistance	50 Ω
Voltage signal:	(0…1 V)
Measuring range	0…1 V
Resolution	0.05 mV
Accuracy	± 0.2 mV ± 0.05 %
Input resistance	100 kΩ
Voltage signal	(0...10 V / 30 V)
Measuring range	0…10 V
Resolution	0.5 mV
Accuracy	± 2 mV ± 0.05 %
Input resistance	1 MΩ
RTD Pt 100	
Measuring range	-328…1562 °F
Resolution	0.1 °F
Accuracy	± 0.2 °F (-148…752 °F) ± 0.3 °C (further range)
RTD Pt 1000	
Measuring range	-328…1562 °F
Resolution	0.1 °F± 0.2 ° F (-148…-752 °F)
Accuracy	
Pulse	Min pulse length 500 µs
Measuring range	frequency 0...1 kHz max. 30 VDC