DS 400 mobile - affordable mobile chart recorder

Energy analysis - consumption measurement - leakage calculation at compressed air systems

Advantages at a glance:

- Easy operation via 3.5" colour screen with touch panel
- Internally rechargeable Li-Ion battery - about 8 hours continuous operation

Versatile:
- Up to 4 sensors / meters can be connected, including third-party sensors / counters incl. power supply

Reliable:
- Reliably stores all measured values on a memory card. Easy reading out via USB stick possible

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

Up to 4 sensors can be connected including power supply for all sensors

Easy & intuitive in its operation
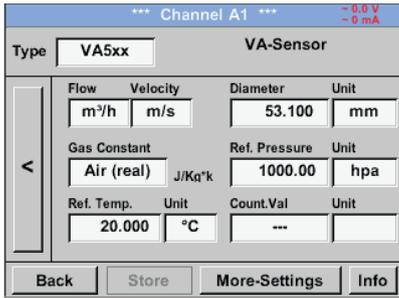
Saves time & costs on installation

Sensors for DS 500 / DS 400 mobile

Digital	Digital	Digital / Analogue	Analogue

Flow meters 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 stable in the long term
- quick adaption time
- Large measuring range (-80° to +20 °Ctd)
- For all dryers: (Adsorption dryers, membrane dryers and refrigeration dryers)
- 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 probe 0-10/16/40/100/250/400 overpressure
- Pressure probe -1 to +15 bar (underpressure/overpressure)
- Differential pressure 0...1.6 bar
- Absolute pressure 0 - 1.6 bar (abs)

Temperature sensors

- Large selection of temperature sensors e.g. for measurement of the ambient temperature or gas temperature
- Pt 100 (2- or 3-wire)
- Pt 1000 (2- or 3-wire)
- Temperature sensors with measuring transducer (4-20 mA output)

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

- Particle counter PC 400 in a service case
- up to 0.1 µm or
- up to 0.3 µm

- For the analysis of compressors (load and idle times, energy consumption, on/off cycles) the current consumption of up to 12 compressors is recorded by clamp-on ammeter
- Measuring range of the clamp-on ammeters:

  0 - 400 A
  0 - 1000 A

- **CS PM 600** mobile current/effective power meter with external current transformers for large machines and plants
- external current transformers for encompassing the phases (100 A or 600 A)
- External magnetic measuring tip for measuring the voltage
- measures KW, kWh, cos phi, kVar, kVA
- Data transmission **DS 400 mobile** via Modbus

Compressed air quality measurement

Compressed air quality measurement

Clamp-on ammeters

Current/effective power meters

Analogue	Digital	Analogue	Digital

By means of the chart recorder **DS 400 mobile**, all measured data of a compressor station can be recorded, indicated and evaluated. All sensors of our product range can be connected to the **digital sensor inputs**, e.g.:
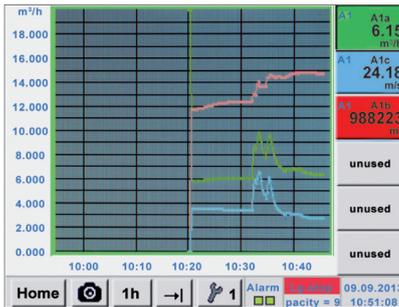
flow meters, dew point sensors, current/effective power meters and third-party sensors with Modbus (RS 485).

At **analogue sensor inputs** third party sensors and meters with the following signal output could be connected: 4-20 mA, 0-20 mA | 0-1 V / 0-10 V / 0-30 V | Pt 100 (2- or 3-wire), Pt 1000 (2- or 3-wire), pulse outputs (e.g. of gas meters), Modbus protocol
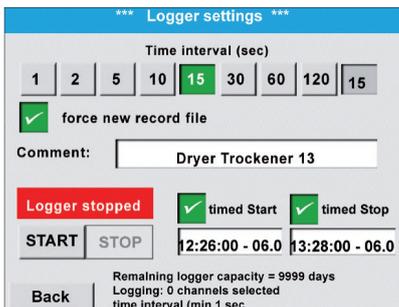
Configuration of flow sensor

In the menu of the DS 500 mobile / DS 400 mobile, the flow meter VA 500 can be set to the respective pipe inside diameter. Furthermore, the unit, the gas type and the reference condition can be set. The meter reading can be set to "zero" if necessary.

Graphic view

In the graphic view all measured values are indicated as curves.
It is possible to browse back on the time axis by a slide of the finger (without data logger maximum 24 h, with data logger back to the start of the measurement).
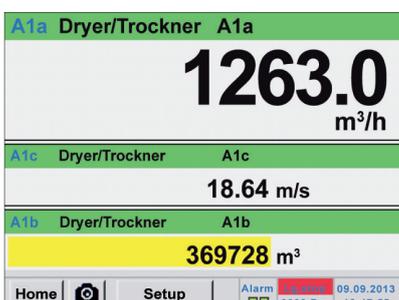
Data logger

With the option "integrated data logger", the measured values are stored in the DS 500/DS 400. The time interval can be freely set. Furthermore there is the possibility to fix the starting time and the end time of the data recording. Read-out of the measured data via USB interface or via the optional Ethernet interface.

Selection of the language

Many languages are already stored in every DS 500 mobile/ DS 400 mobile. The desired language can be selected via the selection button.

All relevant parameters at a glance

In addition to the flow rate in m³/h, the DS 500 mobile/DS 400 mobile also displays other parameters such as total consumption in m³ and speed in m/s.

Technical data of DS 400 mobile

TECHNICAL DATA DS 400 MOBILE	
Dimensions:	270 x 225 x 156 mm (W x H x D)
Weight:	2.2 kg
Inputs:	2 x 2 sensor inputs for digital or analogueue sensor signals
Interface:	USB (standard), Ethernet (optional)
Power supply:	Internal rechargeable Li-Ion batteries, approx 8 h continuos operation, 4 h charging time
Options:	
Integrated data logger:	100 million measured values start/stop time, measuring rate freely adjustable
2 additional sensor inputs:	For connection of pressure sensors, temperature sensors, clamp-on ammeters, third-party sensors with 4...20 mA, 0 to 10 V, Pt 100, Pt 1000

INPUT SIGNALS	
Current signals internal or external power supply	(0…20 mA/4…20 mA)
Measuring range Resolution Accuracy Input resistance	0…20 mA 0.0001 mA ± 0.03 mA ± 0.05 % 50 Ω
Voltage signal: Measuring range Resolution Accuracy Input resistance	(0…1 V) 0…1 V 0.05 mV ± 0.2 mV ± 0.05 % 100 kΩ
Voltage signal Measuring range Resolution Accuracy Input resistance	(0...10 V / 30 V) 0…10 V 0.5 mV ± 2 mV ± 0.05 % 1 MΩ
RTD Pt 100 Measuring range Resolution Accuracy	-200…850 °C 0.1 °C ± 0.2 °C (-100…400 °C) ± 0.3 °C (further range)
RTD Pt 1000 Measuring range Resolution Accuracy	-200…850 °C 0.1 °C ± 0.2° (-100…400 °C)
Pulse Measuring range	Min pulse length 500 µs frequency 0...1 kHz max. 30 VDC

DESCRIPTION			ORDER NO.
	Sensor input 1 and 2	**Sensor input 3 and 4**	
DS 400 mobile - chart recorder with graphic display, touch screen and integrated data logger	Digital (Z500 4003)	--------	0500 4012 D
	Digital (Z500 4003)	Digital (Z500 4003)	0500 4012 DD
	Digital (Z500 4003)	Analogue (Z500 4001)	0500 4012 DA
	Analogue (Z500 4001)	--------	0500 4012 A
	Analogue (Z500 4001)	Analogue (Z500 4001)	0500 4012 AA

Options:

Option: Integrated Ethernet and RS 485 interface	Z500 4004
Option: Integrated webserver	Z500 4005
Option: "Mathematics calculation function" for 4 freely selectable channels, (virtual channels): addition, subtraction, division, multiplication	Z500 4007
Option: "Totaliser function for analogue signals"	Z500 4006

Further accessories:

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 Soft Energy Analyzer for energy and leakage analysis of compressed air stations	0554 7050
Connection cable for pressure, temperature and third-party sensors to mobile devices, ODU/open ends, 5 m	0553 0501
Connection cable for pressure, temperature and third-party sensors to mobile devices, ODU/open ends, 10 m	0553 0502
Connection cable for VA / FA sensors to mobile devices, ODU/M12, 5 m	0553 1503
Extension cable for mobile devices ODU/ODU, 10 m	0553 0504
Connection cable for mobile current / effective power meter to mobile devices, length 5 m	0553 0506
Case for all sensors (dimensions: 500 x 360 x 120 x mm)	0554 6006

Matching sensors can be found on pages 38 to 41

Digital	Digital	Digital	Digital
m³/h, m³	°Ctd	A, kW/h	
Flow sensor	Dew point sensors	Current/ effective power meter	Third-party sensors with RS 485

Digital Analogue	Analogue	Analogue	Analogue
bar	A	°C	°C
			4…20 mA 0…20 mA 0…10 V Pulse Pt 100 Pt 1000
Pressure sensor	Clamp-on ammeter	Temperature sensor	Third party sensor analogue output

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