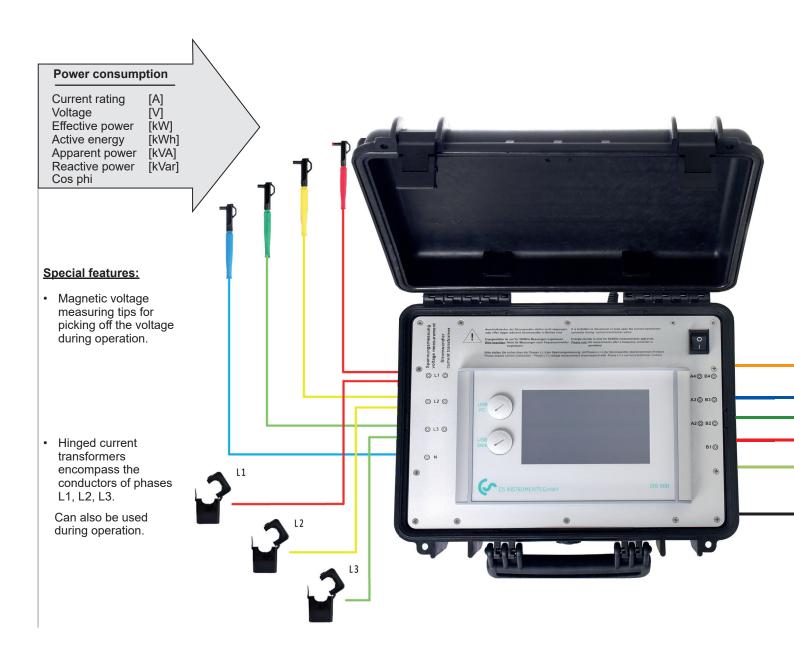
## DS 500 PM mobile – efficiency measurement for compressors

All-in-one measurement: electrical energy, pressure, dew point, temperature and consumption

Besides common measurements such as compressed air consumption or humidity, even more complex measurement tasks can be tackled with this all-round mobile device. With the DS 500 PM mobile, conducting an energy analysis according to DIN ISO 50001 is child's play.

Its clear, simple operating method makes it possible, for example, to carry out an analysis of compressed air costs by simultaneously measuring energy consumption (kW/kWh) and compressor output (m³/m³/h). And the data logger with its integrated effective power meter is perfect for auditors or service technicians.



#### For universal use:

• Up to 11 devices can be connected, including third-party sensors incl. power supply

#### Reliable:

· Reliably stores all measured values on a memory card. Easy readout possible via USB stick

#### **Energy analysis according to DIN ISO 50001:**

- Costs in EUR per m3 air generated
- Specific output in kWh/m³
- Consumption of single lines including summation

## **Chart recorder**



#### Flow meters for compressed air and gases

- Can be installed and removed under pressure via standard 1/2" ball valve
- A safety ring prevents uncontrollable ejection during installation/removal under pressure
- Can be used with different gases: compressed air, nitrogen, argon, CO2, oxygen

#### **Dew point sensors**

- Extreme long-term stability
- Short adaption time
- Wide measuring range (-80° to +20° Ctd)
- For all dryers: (adsorption dryers, membrane dryers and refrigeration dryers)
- Easy to install under pressure using the standard measuring chamber with quick
- Large selection of pressure sensors with different measuring ranges for each measuring purpose

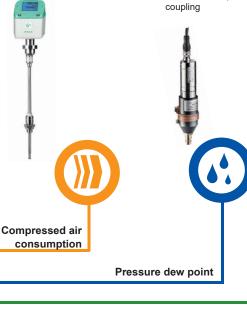
Pressure sensors

- Quick to install under pressure by quick coupling
- Pressure sensor 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

#### Compressed air quality

- Large selection of temperature sensors e.g. for measurement of the ambient temperature or gas temperature
- Pt 100 (2-wire or 3-wire)
- Pt 1000 (2-wire 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 service case up to 0.1 µm or up to 0.3 µm







Pressure





**Temperature** 







Residual oil/particles



#### Compressed air generated

Compressed air flow [m3]

Pressure dew point [° Ctd] [bar]

Pressure Temperature

Residual oil content [mg/m³] Particle content

° C/°F1 [Cts/m<sup>3</sup>]

Mobile electricity/effective power meter

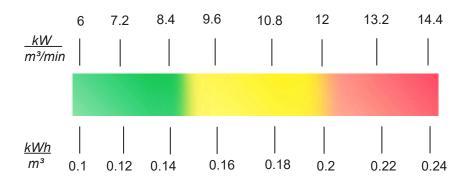
With one or more additional electricity/effective power meters, it is possible to carry out efficiency measurements of several compressors simultaneously.

# **Chart recorder**

#### **Analysis of specific power:**

By measuring power consumption and delivery volume simultaneously, it is possible to calculate the specific power of the compressor. The specific power is calculated using the ratio of the required energy consumption in kWh to the volume of air in m3 output during the same period.

The specific performance indicator of the compressor supplies information about the compressor's characteristics. The 'traffic light' graphic below can be used as an aid to assessment:



A typical specific power requirement for an oil-injected compressor might look something like this:

**Delivery volume:** 43.7 Nm³/min

(according to ISO 1217 based on 20° C + 1 bar)

Total power consumption: 272.7 kW

Specific power requirement = 272.7 kW/43.7 m<sup>3</sup>/min

= 6.24 kWh/m3/min  $= 0.104 \text{ kW/m}^3$ 

#### **DS 500 PM MOBILE TECHNICAL DATA**

Case dimensions: 360 x 270 x 150 mm

Weight: 4.5 kg

Material: Diecast, front foil polyester, ABS

Sensor inputs: 3/7/11 sensor inputs for analogue and digital sensors; freely allocatable. See options

Digital CS sensors for dew point and consumption with FA/VA series SDI interface, RS 485/Modbus RTU digital third-party sensors.

Analogue CS Sensors for pressure, temperature, clamp-on ammeters preconfigured. Analogue third-party sensors

0/4...20 mA, 0...1/10/30 V, pulse, Pt 100/Pt 1000, KTY

24 VDC, max. 130 mA per sensor, integrated mains unit, max. 24 VDC, 25 W. Voltage supply for sensors: For 8/12 sensor input version: 2 integrated mains units, each max. 24 VDC, 25 W

USB stick, Ethernet/RS 485 Modbus RTU/TCP, SDI (other bus systems on request), webserver optional

Memory card: Micro SD memory card, memory size 16 GB

Power supply: 100...240 VAC, 50-60 Hz

TFT transmissive 7" touch panel, graphics, curves, statistics Colour display:

Please see sensor specifications Accuracy:

Operating temperature: 0...50° C Storage temperature: -20...70° C

Interfaces:

## **Chart recorder**



### Example order code for DS 500 PM mobile:

0500 5340\_A1\_B1\_C1\_D1\_E1

Number	of additional sensor inputs
A1	3 inputs
A2	7 inputs
A3	11 inputs

	Current transformers – set consisting of 3 transformers (recommendation refers to 400 volt)	
B1		100A/1A – up to 55 kW
B2		600A/1A – up to 340 kW
В3		1000A/1A – up to 600 kW

Mathematics calculation function (4 virtual channels)	
C1	without mathematics calculation functions
C2	with mathematics calculation functions

Totaliser	Totaliser function for analogue signals	
D1	without totaliser function for analogue signals	
D2	with totaliser function for analogue signals	

	Webserver	
	E1	without web server
	E2	web server integrated

DESCRIPTION	ORDER NO.			
DS 500 PM mobile chart recorder with integrated effective power meter for the analysis of compressors and other consumers	0500 5340 + Order code AE_			
CS Basic – data evaluation in graphic and table form. Readout of measured data via USB or Ethernet. Licensed for 2 work sites	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			
Case for all sensors (dimensions: 500 x 360 x 120 x mm)	0554 6006			