

## IDS 500 mobile Intelligent mobile chart recorder

The intelligent mobile chart recorder - energy analysis according to DIN EN ISO 50001  
Energy analysis - flow measurement - leakage calculation at compressed air systems



### Your advantages at a glance

#### Easy and clear layout:

Very easy operation via 7" color display with touch panel

#### Versatile:

Up to 12 sensors/meters connectable also third-party sensors/meters including power supply

#### Reliable:

Stores all measured values on a memory card, easy reading-out via USB stick possible

#### Intelligent energy analysis:

Daily/weekly/monthly evaluations mathematic function for internal calculations, e.g. the typical key data of a compressed air plant:

- costs in € per generated m<sup>3</sup> air
- kWh/m<sup>3</sup> generated air
- flow of single lines including summation



## Technical Data IDS 500 mobile

### Mesurement of up to 12 compressors

#### Technical data IDS 500 mobile

<b>Case dimensions:</b>	360 x 270 x 150 mm
<b>Connections:</b>	4 / 8 / 12 sensors and supply, 1 x RJ 45 Ethernet connection
<b>Weight:</b>	4.5 kg
<b>Material:</b>	diecast, front foil polyester, ABS
<b>Sensor inputs:</b>	<ul style="list-style-type: none"> <li>4/8/12 sensor inputs for analogue and digital sensors; freely allocatable. See options</li> <li>Digital CS sensors for dew point and flow with SDI interface FA/VA series, digital third-party sensors RS 485 / Modbus RTU.</li> <li>Analogue CS Sensors for pressure, temperature, clamp-on ammeters preconfigured</li> <li>Analogue third-party sensors 0/4...20 mA, 0...1/10/30V, pulse, Pt 100 / Pt 1000, KTY, counter</li> </ul>
<b>Voltage supply for sensor:</b>	<ul style="list-style-type: none"> <li>24 VDC, max. 130 mA per sensor, integrated mains unit, max. 24 VDC, 25 W</li> <li>In case of version 8/12 sensor inputs 2 integrated mains unit, each max. 24 VDC, 25 W</li> </ul>
<b>Interfaces:</b>	USB stick, Ethernet / RS 485 Modbus RTU / TCP, SDI other bus systems on request, Webserver optionally, GSM module
<b>Memory card:</b>	Memory size 2 GB SD Memory card standard, optionally up to 4 GB
<b>Voltage supply:</b>	100...240 VAC / 50-60 Hz
<b>Colour display:</b>	7" touch panel TFT transmissive graphics, curves statistics
<b>Accuracy:</b>	Please see sensor specifications
<b>Operating temperature:</b>	0...50°C
<b>Storage temperature:</b>	-20...70°C



Description	Order No.
Intelligent chart recorder IDS 500 mobile, 4 sensor inputs	0500 5012
Intelligent chart recorder IDS 500 mobile, 8 sensor inputs	0500 5013
Intelligent chart recorder IDS 500 mobile, 12 sensor inputs	0500 5014
Option „integrated webserver“	Z500 5003
Option „energy and flow report“ statistics, daily/weekly/monthly report	Z500 5004
Option „quick measurement with 10 ms sampling rate“ for analogue sensors, max/min value storage per second	Z500 5005
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
ICS Soft Basic - data evaluation in graphic and table form, reading out of the measured data via USB or Ethernet	0554 7040
ICS Soft Energy Analyzer for energy and leakage analysis of compressed air stations	0554 7050
Software Upgrade of the already existing ICS Soft Basic to ICS Soft Energy Analyzer	0554 7045
GSM module for data transfer via the GSM network (mobile network)	on request
Connection cable on mobile instruments, ODU / open ends, 5 m	0553 0501
Connection cable on mobile instruments, ODU / open ends, 10 m	0553 0502
Connection cable for IVA/IFA series on mobile instruments, ODU/M12, 5	0553 1503
Extension cable for mobile instruments ODU/ODU, 10m	0553 0504
Connection cable for mobile current/effectiv power meter	0553 0506
Case of all sensors (dimensions: 500 x 360 x 120 x mm)	0554 6006

#### Input signals

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

## Intelligent mobile chart recorder **IDS 500 mobile** energy analysis to DIN EN ISO 50001

If we talk about operational costs of compressed air plants we are actually talking about the energy cost as they make up about 70 to 80 % of the total costs of a compressed air plant.

Depending on the size of the plant this means considerable operating costs. Even in smaller plants this may quickly add up to 10.000 to 20.000 € per year. This is an amount which can be considerably reduced - even in the case of well operated and maintained plants.

Does this also apply to your compressed air plant? Which actual costs per generated m<sup>3</sup> air do you actually have? Which energy is grined due to the waste heat recovery? What is the total performance balance of your plant? How high are the differential pressures of single filters, how high is the humidity (pressure dew point), how much compressed air is used?...

By means of the new intelligent chart recorder **IDS 500 mobile** and the suitable sensors and meters all these questions can be answered easily. For example by means of a long-term measurement over 7 days, data recording and evaluation at the PC.

Touch screen



12 sensor inputs



Including voltage supply  
for all sensors

USB stick



External GSM module



Ethernet connection



## 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, CO<sub>2</sub>, 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 1.5 mbar up to 4.2 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
- Pt100 (2-wire or 3-wire)
- Pt1000 (2-wire or 3-wire)
- KTY sensors
- Temperature sensors with measuring transducer (4-20 mA output)



- For direct measurement of the heat volume (in kWh)
- Customary heat meters e.g. at heating systems, heat exchangers, district heating networks and so on can be connected to **DS 500 mobile** either via pulse signals or 4-20 mA



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- For the analysis of compressors (load and unload times, energy consumption, switch-on / switch-off cycles) the current input of up to 12 compressors is recorded via clamp-on ammeters
- Measuring ranges of the clamp-on ammeters:

0 - 400 A  
0 - 1000 A



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- Mobile current/effective power meters with 32 A CEE socket and plug for small machines and plants
- Easily to join up into the current circuit by means of an extension cable with 32 A CEE plug
- Measures kW, kWh, cos phi, kVar, kVA
- Data transfer to **DS 500 mobile** via Modbus



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- Mobile current/effective power meters with external current transformer for big machines and plants
- External current transformers for clamping around the phases (100 A or 600 A)
- External magnetic measuring tips for measuring the voltage
- Measures kW, kWh, cos phi, kVar, kVA
- Data transfer **DS 500 mobile** via Modbus



## Heat meters-/ water and gas meters

## Clamp-on ammeters

## Current/effective power meters

## Current/effective power meters

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

At **12 freely assignable sensor inputs** all ICS SCHNEIDER 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), KTY I pulse outputs (e.g. of gas meters) frequency output I Modbus protocol

## Step 1: The measurement

It is a special advantage that up to 12 compressors can be measured with one

**IDS 500 mobile** at the same time



## Step 2:

### 1. Compressor analysis (current / power measurement)

The energy consumption of every single compressor is measured by means of a clamp-on ammeter.

The produced compressed air quantity is calculated by the software on the basis of the performance data of the compressor which have to be calculated. The following parameters are calculated additionally.

Energy consumption in kWh, load-, unload-, stop time, compressor load in %, number of load/ unload cycles.

### 2. System analysis (current measurement and real flow measurement)

The system analysis has the same function like the compressor analysis, however, it additionally offers the possibility to measure the actually produced resp. used quantity of compressed air by means of the flow sensor IVA 500.

With the additional „real flow measurement“ the leakages and therefore the cost share of the leakages in comparison to the total costs in € can be determined.

### 3. Leakage calculation

The leakage calculation is done during the production free time (shutdown, weekend, holidays).

The flow sensor IVA 500 measures the supplied quantity of air. During the down time the compressor delivers compressed air in order to keep a constant pressure.

According to statistics even if production is carried out day and night there is at least one short period of time during which all load is switched off. By means of this data the software defines a leakage rate and calculates the incurred leakage costs in €.

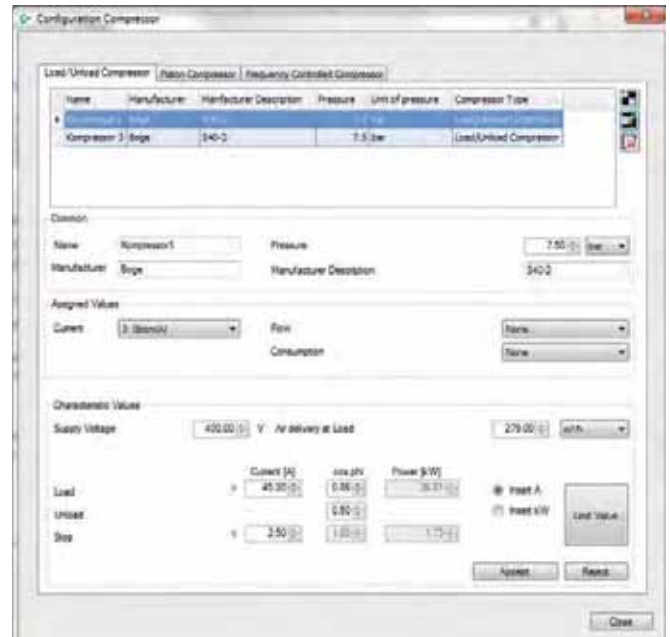
### Step 3:

Evaluation at the PC with graphics and statistics

### 3.1 Entry of necessary parameters

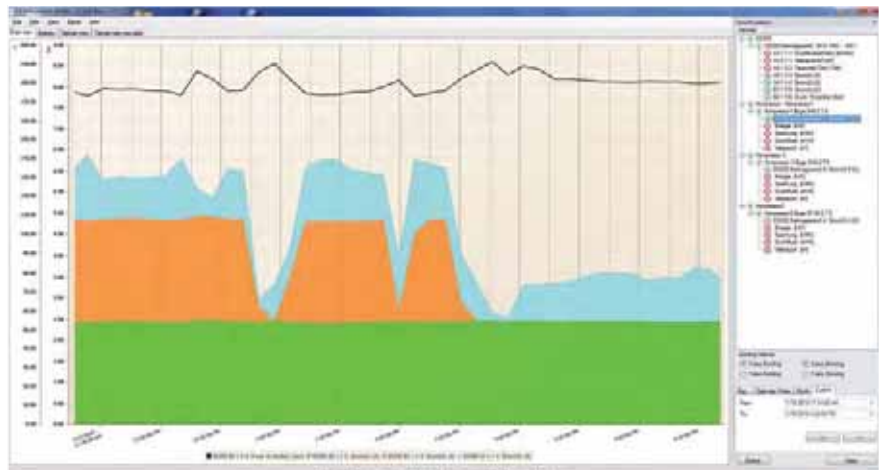
Specific data have to be entered before the analysis is carried out:

- Selection of compressor type (load/idle resp. variable speed drive controlled)
- as well as entry of the performance data according to data sheet
- Period of measurement
- Costs in € for 1 kWh



### 3.2 Graphic evaluation with day view and week view

Everything at a glance: The user gets a day and a week view of all stored measured data with his company logo (can be easily integrated) at the touch of a button. By means of the zoom and the crosslines function peak values can be determined.



### 3.3 Compressed air costs in €/ US\$

At the touch of a button the user gets all important data like e.g.

- Energy costs
- Compressed air costs
- Leakage costs in €/ US\$
- Compressor data with load / unload time
- Specific energy kWh/m³
- Costs for 1 m³ in €/ US\$

**Analysis of Compressor-Energy and -Costs**

Timespan: 1/12/2010 10:39 AM - 1/19/2010 9:44 AM      Tariff1: 6:00 AM - 7:59 PM  
 Tariff2: 0:13 Euro

Timespan in hours: 167.1

Total flow rate: Sum of selected compressors      Tariff2: 8:00 PM - 6:00 AM  
 Tariff2: 0.12 Euro




Limit of leakage: 129.00

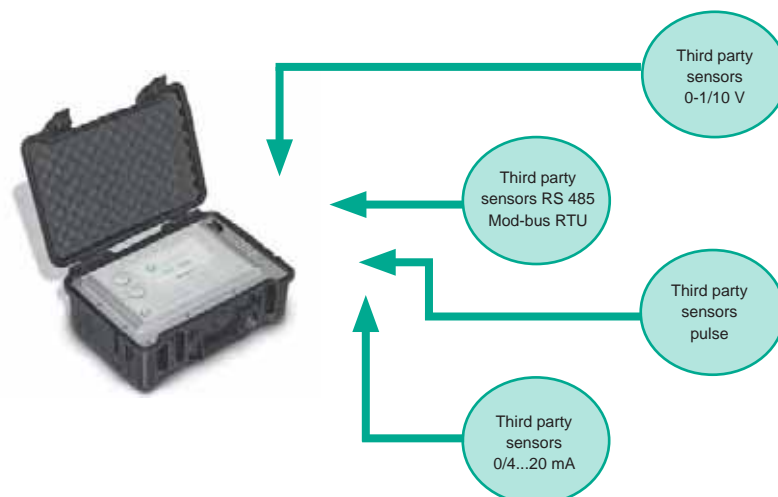
Compressor	Security (S)			Switches	Pressure				Flow		Costs (Euro)				Leakage				
	Load	Unload	Stop		Starts	Load (bar)	Unload (bar)	Flow (m³/h)	Flow (m³/h)	avg (m³/h)	max (m³/h)	Load	Unload	Stop	Leak	Costs per m³	Costs (Euro)		
CI: Kometpress 1	38.8	0.1	128.2	11	14	995.0	1.98	0.08	995.08	0.08	11.44	276.00	1602.00	141.10	0.20	0.01	142.94	0.104	...
CI: Kometpress 2	38.0	0.1	122.4	33	57	1040.27	1.46	0.14	1040.27	0.14	16.95	275.00	1700.00	141.10	0.15	0.01	140.18	0.102	...
CI: Kometpress 3	128.0	0.2	42.4	48	48	2307.28	2.37	0.21	2307.27	0.21	331.40	414.10	1602.00	141.10	0.25	0.01	139.50	0.101	...
Summary	204.8	0.4	293.0	112	119	4942.54	4.81	0.27	4942.62	0.27	201.79	975.00	4912.00	423.30	0.24	0.01	322.56	0.206	144.48

## Suitable sensors for **IDS 500 mobile & IDS 400 mobile**

<b>Flow sensors IVA 500:</b>		<b>Order No.</b>	
Flow sensor IVA 500-Max. Version (185 m/s) sensor length 220 mm, incl. 5 m cable to mobile instruments		0695 1124	
Flow sensor IVA 500 High-Speed Version (224 m/s), sensor length 220 mm, 5 m cable to mobile instruments		0695 1125	
<b>Option for IVA 500:</b>			
Sensor length 120 mm		ZSL 0120	
Sensor length 160 mm		ZSL 0160	
Sensor length 300 mm		ZSL 0300	
Sensor length 400 mm		ZSL 0400	
<b>Flow measuring range IVA 520 for compressed air: (ISO 1217: 1000 mbar, 20°C)</b>			
Flow meter IVA 520, 0,8... 90 l/min, (R 1/4" DN 8)		0250 5960	
Flow meter IVA 520, 0,2... 90 m³/h, (R 1/2" DN 15)		1250 5960	
Flow meter IVA 520, 0,3...170m³/h, (R 3/4" DN 20)		2250 5960	
Flow meter IVA 520, 0,5...290m³/h, (R 1" DN 25)		3250 5960	
Flow meter IVA 520, 0,7...480m³/h, (R 1 1/4" DN 32)		6250 5960	
Flow meter IVA 520, 1,0...550m³/h, (R 1 1/2" DN 40)		4250 5960	
Flow meter IVA 520, 2,0...900m³/h, (R 2" DN 50)		5250 5960	
<b>Dew point sensors:</b>			
IFA 510 dew point sensor for mobile instruments, -80...+20°Ctd, incl. mobile measuring chamber, 5 m cable and perforated cap		0699 1510	
IFA 510 dew point sensor for mobile instruments, -20...50°Ctd incl. mobile measuring chamber, 5 m cable and perforated cap		0699 1512	
<b>Connection cable for IVA/IFA sensors:</b>			
Connection cable for IVA / IFA series on mobile instruments, ODU / M12; 5m		3051 3550	
Extension cable, 10 m		0553 0504	
<b>Calibration certificates for flow / dew point sensors:</b>			
5 point precision calibration for flow sensors including ISO certificate		3200 0001	
Precision calibration at -40°Ctd including ISO certificate		0699 3396	
<b>Pressure sensors:</b>		<b>± 1 % accuracy of full scale</b>	<b>± 0,5 % accuracy of full scale</b>
Standard pressure sensor ICS 16 from 0...16 bar		0694 1886	0694 3555
Standard pressure sensor ICS 40 from 0...40 bar		0694 0356	0694 3930
Standard pressure sensor ICS 1.6 from 0...1.6 bar abs.			0694 3550
Standard pressure sensor ICS 10 from 0...10 bar		0694 3556	0694 3554
Standard pressure sensor ICS 100 from 0...100 bar			0694 3557
Standard pressure sensor ICS 250 from 0...250 bar			0694 3558
Standard pressure sensor ICS 400 from 0...400 bar			0694 3559
Precision pressure sensor ICS -1...+15 bar, ± 0.5 % accuracy of full scale		0694 3553	
Precision differential pressure sensor ICS 400, 0...400 mbar differential pressure, 0.075% accuracy of full scale, static pressure max. 40 bar		0694 3560	
Precision differential pressure sensor for further measuring ranges, e.g. 0...75 mbar, 0...2 bar, 0...8 bar, 0...21 bar, 0...70 bar, 0...200 bar, 0...420 bar		on request	
Pressure calibration certificate, 5 calibration points within the measuring range		3200 0004	

## Suitable sensors for IDS 500 mobile & IDS 400 mobile

Temperature sensors:	Order No.	
Bendable temperature probe Pt 100 Class B, length 300 mm Ø 3 mm, -70... +500°C, 2 m probe connection cable glass fibre/stainless steel with ODU plug 8 pole for mobile instruments	0604 0106	
Screw-in temperature probe Pt 100 Class A, length: 300 mm with measuring transducer 4 to 20 mA = -50 to +500 °C ( 2-wire technology) (Please order additional the connection cable 0553 0501)	0693 0002	
Temperature probe cable Pt 100, Class A, length: 300 mm, Ø 6 mm, -50...+180°C, with 5 m connection cable with open ends (Please order additional the ODU plug Z604 0104)	0604 0102	
Temperature probe cable Pt 100, Class A, length: 150 mm, Ø 6 mm, -50...+180°C, with 5 m connection cable with open ends (Please order additional the ODU plug Z604 0104)	0604 0100	
Mini temperature probe cable Pt100 Class A, length 25 mm, Ø 4 mm 50°C to +180°C, 5 m probe connection cable with open ends (Please order additional the ODU plug Z604 0104)	0604 0105	
Clamp screwing 6 mm, G 1/2", VA clamping, pressure-tight up to 10 bar	0554 6004	
Temperature calibration certificate 2 measuring points	0520 0180	
Connection cables for pressure sensors / temperature sensors:		
Connection cable for pressure, temperature or external sensors on mobile instruments, ODU / open ends, 5 m	0553 0501	
Connection cable for pressure, temperature or external sensors on mobile instruments, ODU / open ends, 10 m	0553 0502	
Extension cable, 10 m	0553 0504	
Mounted Odu plug for connection on mobile instruments	Z604 0104	
Clamp-on ammeters:		
Clamp-on ammeter 0...400 A TRMS incl. 5 m connection cable	0554 0511	
Clamp-on ammeter 0...1000 A TRMS incl. 5 m connection cable	0554 0519	
Calibration certificate for clamp-on ammeter	0554 3333	
ICS PM 600 Current/effective power meter up to 100 A	0554 5341	
ICS PM 600 Current/effective power meter up to 600 A	0554 5342	
- Mobile current/effective power meter with 3 external current transducers for big machines and plants, - External current transformers for clamping on cables (100 or 600 A), - External magnetic measuring tips for measuring the voltage, -Measures kW, kWh, cos phi, kVar, KVA, - Data transfer for IDS 500 mobile / IDS 400 mobile via Modbus, incl. connection cable for mobile current/effective power meter to mobile instruments, 5 m		
Current transformer 100A/1A consisting of 3 transformers for mobile instruments	Z554 0001	
Current transformer 600A/1A consisting of 3 transformers for mobile instruments	Z554 0002	
Current transformer 1000A/1A consisting of 3 transformers for mobile instruments	Z554 0003	
Optional third-party sensors connectable:		
e.g. heat meters, current meters, gas meters, water meters and so on. To the 12 freely assignable sensor inputs all sensors of CS Instruments can be connected as well as optional third-party sensors and counters with the following signal outputs: 4-20 mA, 0-20 mA   0-1 V / 0-10 V / 0-30 V   Pt100 (2- or 3-wire), Pt 1000 (2- or 3-wire), KTY I pulse outputs (e.g. of gas counters)   Frequency output   Modbus protocol		





## Technical Data IDS 500 mobile

### Mesurement of up to 12 compressors

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<b>Voltage supply for sensor:</b>	<ul style="list-style-type: none"> <li>24 VDC, max. 130 mA per sensor, integrated mains unit, max. 24 VDC, 25 W</li> <li>In case of version 8/12 sensor inputs 2 integrated mains unit, each max. 24 VDC, 25 W</li> </ul>
<b>Interfaces:</b>	USB stick, Ethernet / RS 485 Modbus RTU / TCP, SDI other bus systems on request, Webserver optionally, GSM module
<b>Memory card:</b>	Memory size 2 GB SD Memory card standard, optionally up to 4 GB
<b>Voltage supply:</b>	100...240 VAC / 50-60 Hz
<b>Colour display:</b>	7" touch panel TFT transmissive graphics, curves statistics
<b>Accuracy:</b>	Please see sensor specifications
<b>Operating temperature:</b>	0...50°C
<b>Storage temperature:</b>	-20...70°C



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Case of all sensors (dimensions: 500 x 360 x 120 x mm)	0554 6006

#### Input signals

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

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12 sensor inputs



Including voltage supply  
for all sensors

USB stick



External GSM module



Ethernet connection



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for compressed air and gases

- Installation and removal under pressure via standard 1/2" ball valve
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- Pt100 (2-wire or 3-wire)
- Pt1000 (2-wire or 3-wire)
- KTY sensors
- Temperature sensors with measuring transducer (4-20 mA output)



- For direct measurement of the heat volume (in kWh)
- Customary heat meters e.g. at heating systems, heat exchangers, district heating networks and so on can be connected to DS 500 mobile either via pulse signals or 4-20 mA



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- Measuring ranges of the clamp-on ammeters:

0 - 400 A  
0 - 1000 A



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- Easily to join up into the current circuit by means of an extension cable with 32 A CEE plug
- Measures kW, kWh, cos phi, kVar, kVA
- Data transfer to DS 500 mobile via Modbus



A

- Mobile current/effective power meters with external current transformer for big machines and plants
- External current transformers for clamping around the phases (100 A or 600 A)
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## Heat meters-/ water and gas meters

## Clamp-on ammeters

## Current/effective power meters

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

At **12 freely assignable sensor inputs** all ICS SCHNEIDER 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), KTY I pulse outputs (e.g. of gas meters) frequency output I Modbus protocol

## Step 1: The measurement

It is a special advantage that up to 12 compressors can be measured with one

**IDS 500 mobile** at the same time



## Step 2:

**1.** Compressor analysis  
(current / power  
measurement)

The energy consumption of every single compressor is measured by means of a clamp-on ammeter.

The produced compressed air quantity is calculated by the software on the basis of the performance data of the compressor which have to be calculated. The following parameters are calculated additionally.

Energy consumption in kWh, load-, unload-, stop time, compressor load in %, number of load/ unload cycles.

**2.** System analysis  
(current measure-  
ment and real flow  
measurement)

The system analysis has the same function like the compressor analysis, however, it additionally offers the possibility to measure the actually produced resp. used quantity of compressed air by means of the flow sensor IVA 500.

With the additional „real flow measurement“ the leakages and therefore the cost share of the leakages in comparison to the total costs in € can be determined.

**3.** Leakage  
calculation

The leakage calculation is done during the production free time (shutdown, weekend, holidays).

The flow sensor IVA 500 measures the supplied quantity of air. During the down time the compressor delivers compressed air in order to keep a constant pressure.

According to statistics even if production is carried out day and night there is at least one short period of time during which all load is switched off. By means of this data the software defines a leakage rate and calculates the incurred leakage costs in €.

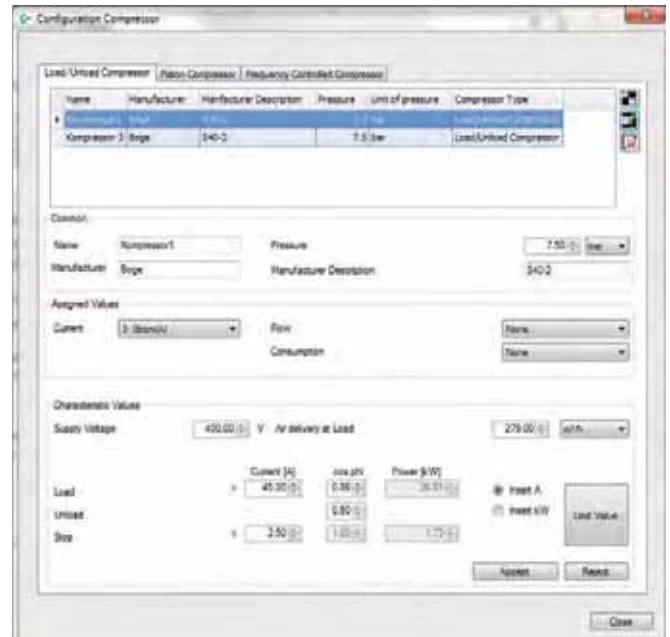
### Step 3:

Evaluation at the PC with graphics and statistics

### 3.1 Entry of necessary parameters

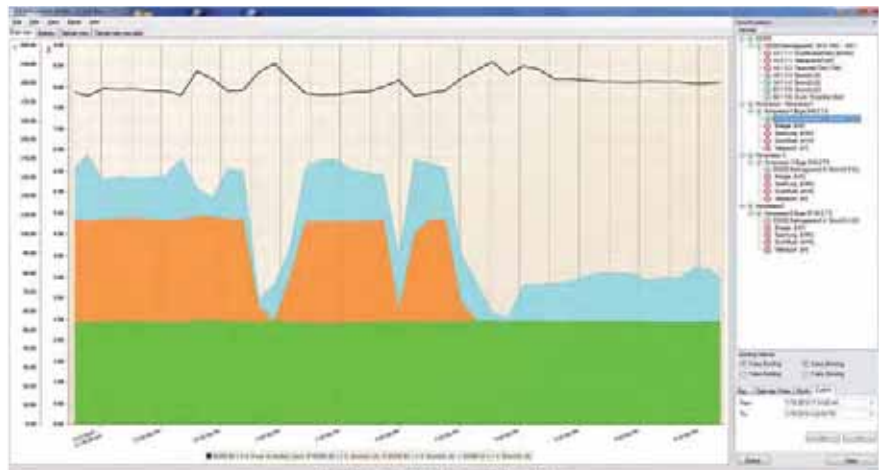
Specific data have to be entered before the analysis is carried out:

- Selection of compressor type (load/idle resp. variable speed drive controlled)
- as well as entry of the performance data according to data sheet
- Period of measurement
- Costs in € for 1 kWh



### 3.2 Graphic evaluation with day view and week view

Everything at a glance: The user gets a day and a week view of all stored measured data with his company logo (can be easily integrated) at the touch of a button. By means of the zoom and the crosslines function peak values can be determined.



### 3.3 Compressed air costs in €/ US\$

At the touch of a button the user gets all important data like e.g.

- Energy costs
- Compressed air costs
- Leakage costs in €/ US\$
- Compressor data with load / unload time
- Specific energy kWh/m<sup>3</sup>
- Costs for 1 m<sup>3</sup> in €/ US\$

**Analysis of Compressor-Energy and -Costs**




Timespan: 1/12/2010 10:39 AM - 1/19/2010 9:44 AM      Tariff1: 6:00 AM - 7:59 PM  
 Timespan in hours: 167.1      Tariff2: 8:00 PM - 6:00 AM  
 Total flow rate: Sum of selected compressors      0.12 Euro  
 Limit of leakage: 129.00

Compressor	Security (S)		Switches	Priority	Flow		Costs (Euro)		Leakage								
	Load	Unload			Load (m <sup>3</sup> /h)	Unload (m <sup>3</sup> /h)	Load	Unload	Costs per m <sup>3</sup>	Leakage (m <sup>3</sup> )	Costs (Euro)						
CI: Kometpress	38.8	0.1	128.2	11	14	995.0	1.98	0.08	995.0	0.12	11.44	276.0	0.01	142.94	0.08	...	...
CI: Kometpress	38.0	0.1	122.4	11	57	1460.27	1.46	0.14	1460.27	0.12	14.10	275.0	0.01	140.18	0.08	...	...
CI: Kometpress	128.0	0.2	67.8	48	48	2207.28	2.21	0.21	2207.27	0.12	21.44	414.1	0.01	207.02	0.08	...	...
Summary	304.8	1.4	318.4	112	145	4962.54	4.70	0.27	4962.54	0.12	46.98	975.10	0.01	488.14	0.08	1444.48	149.03

## Suitable sensors for **IDS 500 mobile & IDS 400 mobile**

<b>Flow sensors IVA 500:</b>		<b>Order No.</b>	
Flow sensor IVA 500-Max. Version (185 m/s) sensor length 220 mm, incl. 5 m cable to mobile instruments		0695 1124	
Flow sensor IVA 500 High-Speed Version (224 m/s), sensor length 220 mm, 5 m cable to mobile instruments		0695 1125	
<b>Option for IVA 500:</b>			
Sensor length 120 mm		ZSL 0120	
Sensor length 160 mm		ZSL 0160	
Sensor length 300 mm		ZSL 0300	
Sensor length 400 mm		ZSL 0400	
<b>Flow measuring range IVA 520 for compressed air: (ISO 1217: 1000 mbar, 20°C)</b>			
Flow meter IVA 520, 0,8... 90 l/min, (R 1/4" DN 8)		0250 5960	
Flow meter IVA 520, 0,2... 90 m³/h, (R 1/2" DN 15)		1250 5960	
Flow meter IVA 520, 0,3...170m³/h, (R 3/4" DN 20)		2250 5960	
Flow meter IVA 520, 0,5...290m³/h, (R 1" DN 25)		3250 5960	
Flow meter IVA 520, 0,7...480m³/h, (R 1 1/4" DN 32)		6250 5960	
Flow meter IVA 520, 1,0...550m³/h, (R 1 1/2" DN 40)		4250 5960	
Flow meter IVA 520, 2,0...900m³/h, (R 2" DN 50)		5250 5960	
<b>Dew point sensors:</b>			
IFA 510 dew point sensor for mobile instruments, -80...+20°Ctd, incl. mobile measuring chamber, 5 m cable and perforated cap		0699 1510	
IFA 510 dew point sensor for mobile instruments, -20...50°Ctd incl. mobile measuring chamber, 5 m cable and perforated cap		0699 1512	
<b>Connection cable for IVA/IFA sensors:</b>			
Connection cable for IVA / IFA series on mobile instruments, ODU / M12; 5m		3051 3550	
Extension cable, 10 m		0553 0504	
<b>Calibration certificates for flow / dew point sensors:</b>			
5 point precision calibration for flow sensors including ISO certificate		3200 0001	
Precision calibration at -40°Ctd including ISO certificate		0699 3396	
<b>Pressure sensors:</b>		<b>± 1 % accuracy of full scale</b>	<b>± 0,5 % accuracy of full scale</b>
Standard pressure sensor ICS 16 from 0...16 bar		0694 1886	0694 3555
Standard pressure sensor ICS 40 from 0...40 bar		0694 0356	0694 3930
Standard pressure sensor ICS 1.6 from 0...1.6 bar abs.			0694 3550
Standard pressure sensor ICS 10 from 0...10 bar		0694 3556	0694 3554
Standard pressure sensor ICS 100 from 0...100 bar			0694 3557
Standard pressure sensor ICS 250 from 0...250 bar			0694 3558
Standard pressure sensor ICS 400 from 0...400 bar			0694 3559
Precision pressure sensor ICS -1...+15 bar, ± 0.5 % accuracy of full scale		0694 3553	
Precision differential pressure sensor ICS 400, 0...400 mbar differential pressure, 0.075% accuracy of full scale, static pressure max. 40 bar		0694 3560	
Precision differential pressure sensor for further measuring ranges, e.g. 0...75 mbar, 0...2 bar, 0...8 bar, 0...21 bar, 0...70 bar, 0...200 bar, 0...420 bar		on request	
Pressure calibration certificate, 5 calibration points within the measuring range		3200 0004	

## Suitable sensors for IDS 500 mobile & IDS 400 mobile

Temperature sensors:	Order No.	
Bendable temperature probe Pt 100 Class B, length 300 mm Ø 3 mm, -70... +500°C, 2 m probe connection cable glass fibre/stainless steel with ODU plug 8 pole for mobile instruments	0604 0106	
Screw-in temperature probe Pt 100 Class A, length: 300 mm with measuring transducer 4 to 20 mA = -50 to +500 °C ( 2-wire technology) (Please order additional the connection cable 0553 0501)	0693 0002	
Temperature probe cable Pt 100, Class A, length: 300 mm, Ø 6 mm, -50...+180°C, with 5 m connection cable with open ends (Please order additional the ODU plug Z604 0104)	0604 0102	
Temperature probe cable Pt 100, Class A, length: 150 mm, Ø 6 mm, -50...+180°C, with 5 m connection cable with open ends (Please order additional the ODU plug Z604 0104)	0604 0100	
Mini temperature probe cable Pt100 Class A, length 25 mm, Ø 4 mm 50°C to +180°C, 5 m probe connection cable with open ends (Please order additional the ODU plug Z604 0104)	0604 0105	
Clamp screwing 6 mm, G 1/2", VA clamping, pressure-tight up to 10 bar	0554 6004	
Temperature calibration certificate 2 measuring points	0520 0180	
Connection cables for pressure sensors / temperature sensors:		
Connection cable for pressure, temperature or external sensors on mobile instruments, ODU / open ends, 5 m	0553 0501	
Connection cable for pressure, temperature or external sensors on mobile instruments, ODU / open ends, 10 m	0553 0502	
Extension cable, 10 m	0553 0504	
Mounted Odu plug for connection on mobile instruments	Z604 0104	
Clamp-on ammeters:		
Clamp-on ammeter 0...400 A TRMS incl. 5 m connection cable	0554 0511	
Clamp-on ammeter 0...1000 A TRMS incl. 5 m connection cable	0554 0519	
Calibration certificate for clamp-on ammeter	0554 3333	
ICS PM 600 Current/effective power meter up to 100 A	0554 5341	
ICS PM 600 Current/effective power meter up to 600 A	0554 5342	
- Mobile current/effective power meter with 3 external current transducers for big machines and plants, - External current transformers for clamping on cables (100 or 600 A), - External magnetic measuring tips for measuring the voltage, -Measures kW, kWh, cos phi, kVar, KVA, - Data transfer for IDS 500 mobile / IDS 400 mobile via Modbus, incl. connection cable for mobile current/effective power meter to mobile instruments, 5 m		
Current transformer 100A/1A consisting of 3 transformers for mobile instruments	Z554 0001	
Current transformer 600A/1A consisting of 3 transformers for mobile instruments	Z554 0002	
Current transformer 1000A/1A consisting of 3 transformers for mobile instruments	Z554 0003	
Optional third-party sensors connectable:		
e.g. heat meters, current meters, gas meters, water meters and so on. To the 12 freely assignable sensor inputs all sensors of CS Instruments can be connected as well as optional third-party sensors and counters with the following signal outputs: 4-20 mA, 0-20 mA   0-1 V / 0-10 V / 0-30 V   Pt100 (2- or 3-wire), Pt 1000 (2- or 3-wire), KTY I pulse outputs (e.g. of gas counters)   Frequency output   Modbus protocol		

