



Installation manual

current /effective power meter CS-PM 600 and DS 500 mobile



I. Foreword

Dear customer,

thank you very much for deciding in favour of the CS-PM 600. Please read this installation and operation manual carefully before mounting and initiating the device and follow our advice. A riskless operation and a correct functioning of the CS-PM 600 are only guaranteed in case of careful observation of the described instructions and notes.



Sales Office South/Geschäftsstelle Süd

Zindelsteiner Str. 15

D-78052 VS-Tannheim

Tel.: +49 (0) 7705 978 99 0

Fax: +49 (0) 7705 978 99 20

Mail: info@cs-instruments.com

Web: <http://www.cs-instruments.com>

Sales Office North/Geschäftsstelle Nord

Am Oxer 28c

D-24955 Harrislee

Tel.: +49 (0) 461 700 20 25

Fax: +49 (0) 461 700 20 26

Mail: info@cs-instruments.com

Web: <http://www.cs-instruments.com>

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Safety instructions

1 Safety instructions



Please check whether this manual corresponds with the device type.

Please attend to all notes indicated in this instruction manual. It contains essential information which has to be followed during installation, operation and maintenance. Therefore this instruction manual has to be read categorically by the technician as well as by the responsible user/qualified personnel before installation, initiation and maintenance.

This instruction manual has to be available at any time at the operation site of the CS-PM 600. Regional and national regulations respectively, have to be observed in addition to this instruction manual if necessary.

In case of any obscurities or questions with regard to this manual or the instrument please contact CS Instruments GmbH.



Warning!

Supply voltage!

Contact with supply voltage carrying non-insulated parts may cause an electric shock with injury and death.

Measures:

- Note all applicable regulations for electrical installations (e. g. VDE 0100)!
- **Carry out maintenance only in strainless state!**
- All electric works are only allowed to be carried out by authorized qualified personnel.



Warning!

Inadmissible operating parameters!

Undercutting and exceeding respectively of limit values may cause danger to persons and material and may lead to functional and operational disturbances.

Measures:

- Make sure that the CS-PM 600 is only operated within the admissible limit values indicated on the type label.
- Strict observance of the performance data of the CS-PM 600 in connection with the application.
- Do not exceed the admissible storage and transportation temperature.

Further safety instructions:

- Attention should also be paid to the applicable national regulations and safety instructions during installation and operation.
- The CS-PM 600 is not allowed to be used in explosive areas.

Additional remarks:

- Do not overheat the instrument!



Attention!

Malfunctions at the CS-PM 600!

Faulty installation and insufficient maintenance may lead to malfunctions of the CS-PM 600 which may affect the measuring results and which may lead to misinterpretations.

2 Application area

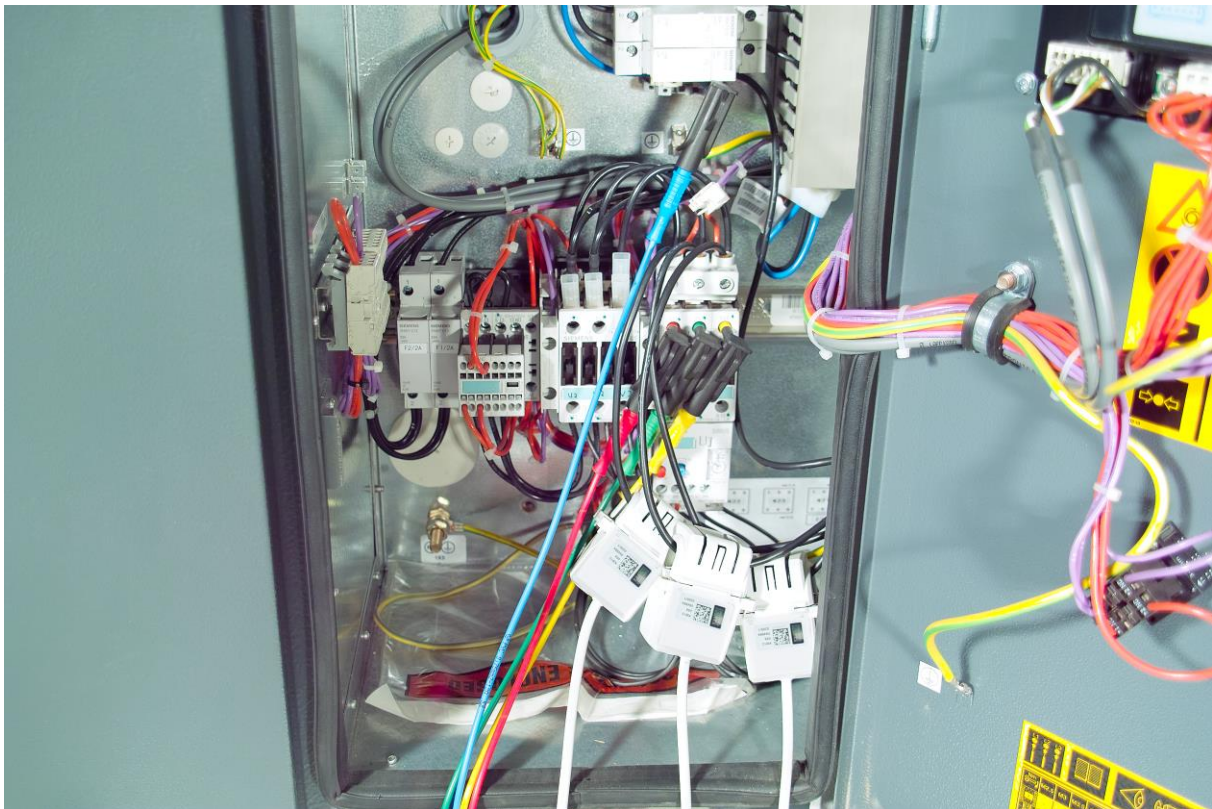
The CS-PM 600 is a mobile current- and effective powermeter for big machines (consumers) e.g. air compressors.

With the CS-PM600 it is possible to do the measurements at running machines without requiring a machine stop at all.

External current transformer (with hinges) are clamping around the phases for the current measurement and the voltage is measured with external magnetic measurement tips.

Depending on the used current transformer, currents up to 100A or 600A could be measured.

All measurement data will be transferred via RS485 (Modbus) to a mobile DS 500 where they could be displayed, recorded and analyzed.



Technical data

3 Technical data

CE								
Dimensions of housing	270 x 225 x 156 mm (B x H x T)							
Weight	2,1 kg							
Material	impact resistant HDPE/HWU –plastic (ABS)							
Connection	4x Voltage for L1, L2, L3 and N 3x Current transformer for L1, L2, L3 (ODU- 3-pol) 1x Power Supply for RS485 Module 1x RS485 Modbus (ODU- 8-pol)							
Current transformer	100A → max wire-diameter 24mm 600A → max wire-diameter 36mm							
Interface	RS 485 Modbus RTU							
Power supply	100 – 240 VAC/50 – 60 Hz							
Operating temperature	0°C – 40 °C							
Storage temperature	-20 bis +70°C							
Measurements	Voltage (V) , Current (A) Active Power (KW), Apparent power (kVA), Reactive power (KVar), Active energy (KWh), Frequency (Hz), Cos Phi,							
Measurement range	Voltage measurement	max. 415Volt						
	Current measurement	max. 100A or 600A depending on used current transformer						
Current measurement	Accuracy :	IEC 60044-1 Klasse 1						
		Stromabweichung in % bei In						
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center;">120%</td> <td style="width: 25%; text-align: center;">100%</td> <td style="width: 25%; text-align: center;">20%</td> <td style="width: 25%; text-align: center;">5%</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1.5</td> <td style="text-align: center;">3</td> </tr> </table>	120%	100%	20%	5%	1	1
120%	100%	20%	5%					
1	1	1.5	3					
Active Power	Accuracy :	IEC 62053-21 Klasse 1						

4 Connections CS-PM 600

Measurement Voltage

- Phase L1 – measuring line - red
- Phase L2 – measuring line - yellow
- Phase L3 – measuring line - green
- Neutral N – measuring line - blue (Optional)

Measurement Current

- Phase L1 – Current transformer connector - red
- Phase L2 – Current transformer connector - yellow
- Phase L3 – Current transformer connector - green



**Only for 50 / 60Hz measurements.
Not approved for measurements after frequency converter!**



Please ensure that Phases of Voltage- and Current measurements correspond else it leads to malfunctions of the CS-PM 600 which may affect the measuring results and which may lead to misinterpretations

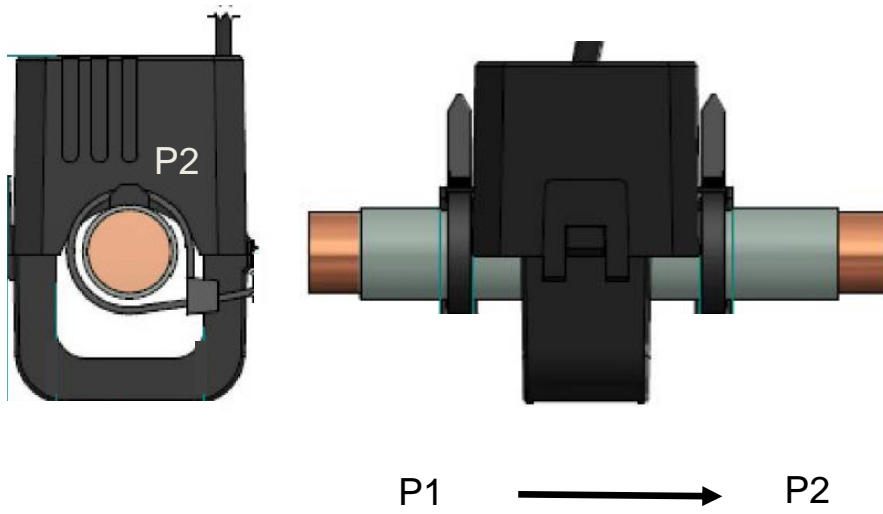
**Warning!
Supply voltage!**



First connect test leads and current transformers to CS-PM600 before voltage test probes and current transformers are applied.

Contact with supply voltage carrying non-insulated parts may cause an electric shock with injury and death!

5 Current transformer installation



Please ensure that the current transformer is completely closed. (2x Click)

6 Connection CS-PM600 at DS500 mobile (RS485)

The data transfer from the mobile current power meter to the DS 500 mobile is digital via Modbus (RS485). Please use the CS connection cable 0553 0506.

6.1 Connection plan CS-PM600 to DS 500 mobile



Connexion

6.2 DS 500 mobile settings for CS-PM600

6.2.1 Choice and activation of the CS-PM600

First step: choose an unused sensor channel

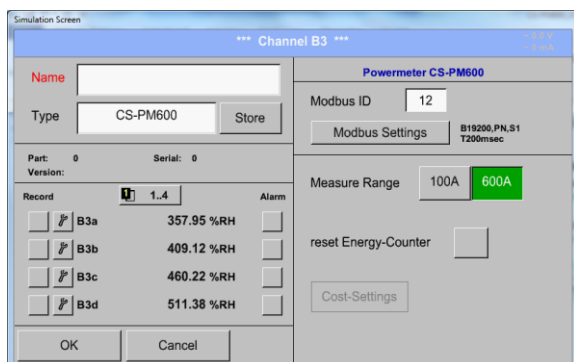
Main menu → Settings → Sensor settings → B3

Second step: choose type CS-PM600

Main menu → Settings → Sensor settings → B3 → Type description field CS-PM600

Third step: confirm with **OK**.

Now, a **Name** (See Installation and operating instructions DS 500 mobile chapter 8.2.2.7 Label and setting the description fields) can be determined.



Textfield **Modbus ID**

The CS-PM600 is delivered with **Modbus ID = 1**. Please ensure that **Modbus Id = 1** is set.

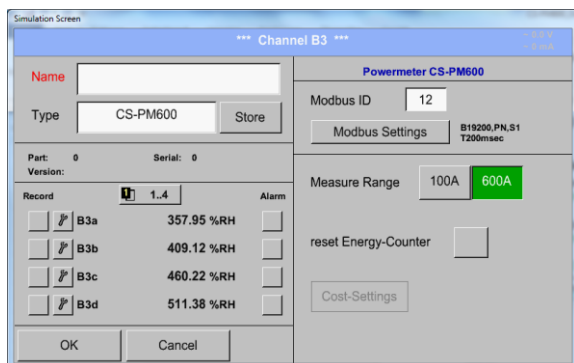
Modbus settings for CS-PM600

Baudrate: 19600

Stopbits: 1

Parity: None

These settings are also the standard settings.



By pressing button **Measure Range 100A** or **600A** the measuring range for the current - measurement will be selected. Depending on the connected current transformers. Wrong selection will lead to **incorrect** measurement results

By pressing button **reset Energy-Counter** all stored measurement values will be reseted.

For further installation information of DS500 see instruction manual DS500 mobile.