INSTRUCTION MANUAL

Magdeburger Prüfgerätebau GmbH

HMP PDG*pro*

THE STATIC PLATE LOAD TESTER

HD-4129.3F
HD-4130.3F
HD-4159.3F
HD-4149.3F

Testing Equipment For Construction Materials

HUMBOLDT

Magdeburger Prüfgerätebau GmbH

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Information for Users

This instruction manual was prepared such that users can easily become familiar with the HMP PDG Plate Load Tester, and make use of the tester for intended applications.

Users should carefully read this instruction manual and the safety instructions prior to using the Plate Load Tester.
Users also have to read carefully the operating instructions by company LUKAS for hand pump, hydraulic cylinder and quick coupler before using the Plate Load Tester. These can be found on supplied CD.

Follow the instructions of this instruction manual and the operating instructions of company LUKAS without exception.

Symbols Used

Warnings and instructions are highlighted as described below:

Warning
This symbol is used in conjunction with related text to draw user's attention to hazards and risks which may cause failure of tester components or adversely affect operating procedures, in case users do not take the corresponding precautions.

Note
This symbol and the related text identify technical requirements and provide additional information to be taken into account by the operator to carry out the following operations effectively and safely.

Legal terms of reference

The Plate Load Tester complies with the current state of the art and all applicable safety regulations.

Construction and function of the Plate Load Tester meet the requirements laid down in DIN 18134, issue 2012 »Soil – Testing procedures and testing equipment – Plate load test«.

The Plate Load Tester meets the basic safety requirements laid down in the EU Directives for Harmonisation referenced in the EU Declaration of Conformity.

Intended Use

The Plate Load Tester is exclusively intended for determining the soil bearing capacity and the compaction quality of the soil referred to DIN 18134, issue 2012 »Soil – Testing procedures and testing equipment – Plate load test«.

Its intended use also includes:

- Compliance with the safety instructions and safety regulations contained in this instruction manual and in the operating instructions from company LUKAS for the hydraulic components (on supplied CD).
- Compliance with the maintenance and servicing instructions contained in this instruction manual and in the operating instructions from company LUKAS for the hydraulic components (on supplied CD).

Any other use or any use beyond this definition is not intended and may cause injury to people and damage to property.
The manufacturer/supplier shall not be held liable for damages resulting from other than the intended use. The risk shall be borne solely by the user.

General structure / Components

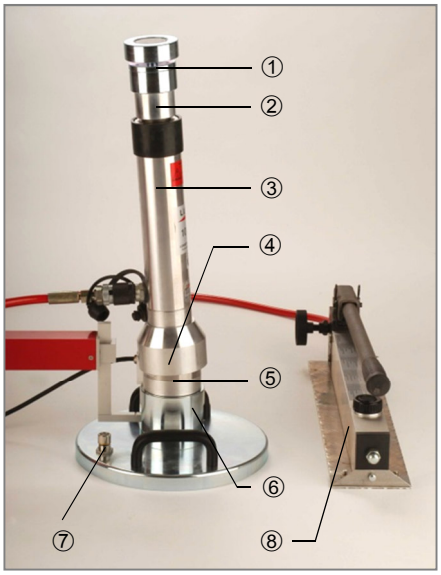


Figure 1

Loading mechanism and Load plate

Figure 1 (refer to Annex 1)

1 Ball-and-socket joint with magnetic holder
2 Extension pieces
3 Hydraulic cylinder
4 Thrust piece
5 Load cell
6 Measuring tunnel
7 Load plate with bubble level
8 Hydraulic pump

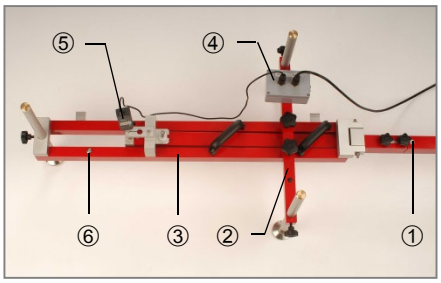


Figure 2

Settlement measuring mechanism (measuring frame)

Figure 2

1 Extension arm with measuring finger
2 Traverse
3 Measuring frame
4 Measuring head
5 Dial gauge
6 Bubble level

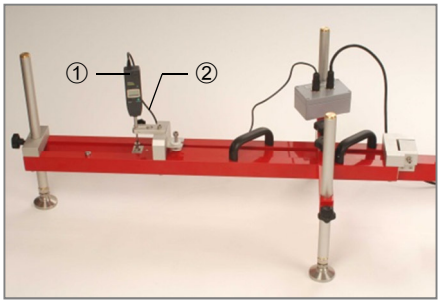


Figure 3

Electronic dial gauge

Figure 3

1 Dial gauge
2 Dial gauge cable

Figure 4

Measuring case

Figure 4

1 Measuring instrument
2 Measuring head
3 Thrust piece
4 Electronic dial gauge
5 Electrical load cell
6 Printer (*optional*)

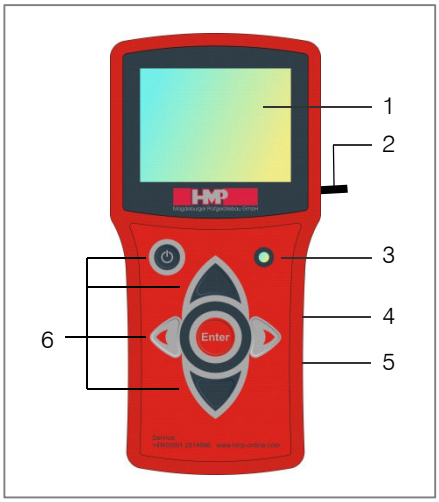


Figure 5

Measuring instrument

Figure 5

1 TFT colour display
2 Measuring cable
3 Ambient Light Photo Sensor
4 USB port
5 Printer port
6 Function keys

Specification

Loading mechanism

Hydraulic pump with 100 kN cylinder
and 150 mm lift with high-pressure hose of 2 m in length.
1 set of hydraulic cylinder extension pieces (plug-type connection)
1 pressure plate with magnetic holder and upper ball-and-socket joint

Load plate

with adjustable bubble level

Diameter	300	mm
Thickness of plate	25	mm

Settlement measuring mechanism (measuring frame)

Support frame on three-point bearing, equipped with insertable and turnable contact element (DIN 18134, Fig. 3a) and adjustable feet
Dimensions:

Length	2,320	mm
Width	570	mm
Height	420	mm
Weight	13.2	kg

Measuring of load

- Electrical load cell 50 kN or 100 kN,
  complete with thrust piece and adapter

Measuring of settlement

- Electronic dial gauge
  25 mm measuring range, 0.01 mm resolution,
  local display unit, IP 42

Automatic evaluation unit

- Measuring head
  logging load and settlement data, interfering-immune digital transmission to measuring instrument
- Measuring instrument
  data logger for load and settlement data with automatic processing and evaluation facilities as well as storage capability for more than 200 tests
  - Comfortable user interface
  - 3.5“ TFT colour display
  - Rechargeable Lithium-ion polymer battery pack (Lithium polymer battery pack)
  - Interfaces: Bluetooth, USB, thermal printer
  - GPS integrated
- thermal printer to print data and pressure settling lines on the site *(optional)*
- Aluminium case for measuring instruments
  Dimensions: 460 x 350 x 210 mm
  Weight: 8 kg (with load cell 50 kN) or.
  10.5 kg (with load cell 100 kN)

Measuring Instrument HMP PDG*pro*

Operation

The measuring instrument **HMP PDG*pro*** can be operated easily and intuitively by means of the function keys.

Key functions

Switch on / off measuring instrument
Select upward
Select downward
Select to the left / Scroll
Select to the right / Scroll
Enter Confirm selection / Start action

Buttons/Symbols

The currently active button is displayed with colour, the inactive buttons are grey.

Main menu


Measuring ⇨ page 11

Measured data ⇨ page 15
(… read, print, export, delete)

Settings / Service ⇨ page 17.
(display, device, printer, support, calibration)

General

Back to the previous menu
Discard frozen measuring values, approach set point again
Scroll (test series/measured data)
Scroll (test series/measured data)
Store
Delete
Print test series
Export test series ⇨ page 15

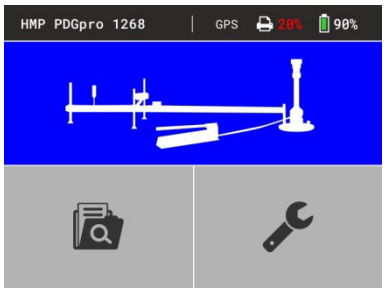


Figure 6

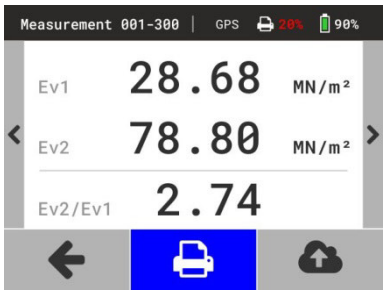


Figure 7

Display

In the main menu the display is subdivided into status line and button area (Figure 6).

In the submenus the display is subdivided into status line, button area/ indicating area and footer (Figure 7). With the keys ▲ ▼ can be switched between button area/indicating area and footer.

The information on the left of status line will be changed according to several menus. In the main menu (Figure 6) type and number of device are displayed for example.
The information on the right side of status line is the same in all menus:

	Status Bluetooth displaying in status line, in case Bluetooth is active (during data transfer only)
GPS	Status GPS displaying in status line, in case GPS is active and available
20%	State of charge of the printer displaying in status line, in case printer is connected
90%	State of charge of the measuring instrument

Overview Menu Functions

Measuring	Taking measurement	
Measured data	Show single measurements	Print
		Export
	Export	
	Delete (all measurements)	
Settings	Display	Date
		Time
		Language
	Device	Plate diameter
		GPS
		Unit
		Calibration
	Printer	Head datea
		Date/time
		Graphics
	Service	
	Calibration menu	
	Maintenance	

By confirming the button ← you always come back to the previous menu.

Power Supply

The measuring instrument **HMP PDG*pro*** is powered by a rechargeable Lithium-ion polymer battery pack (abbreviated herein-after as Lithium polymer battery pack) which is provided with overcharge protection and deep discharge protection.

Safety

- **Do not dismantle, open or shred Lithium polymer battery pack. Exposure to the ingredients contained within or their ingredients products could be harmful.**
- **Do not expose Lithium polymer battery pack to heat or fire. Avoid storage of device/battery pack in direct sunlight.**
- **Lithium polymer battery pack must not be short-circuited.**
- **Do not subject Lithium polymer battery pack to mechanical shock.**
- **Observe local, state and federal laws and regulations for disposal.**

- **The supplied accessories must only be used for devices supplied by HMP and according to this instruction manual. Any other use may cause damages.**

Switching-off automatically

The measuring instrument **HMP PDG*pro*** switches off automatically, in case there is no action for about 90 s.

The device will not switch off automatically, as long as it is in the measuring mode.

If the Lithium polymer battery pack of the measuring instrument drops below the voltage required for operation, the device switches off automatically, in order to prevent a deep discharging of the battery pack. Before switching on the instrument again, please charge the battery pack.

Charging of Lithium polymer battery pack

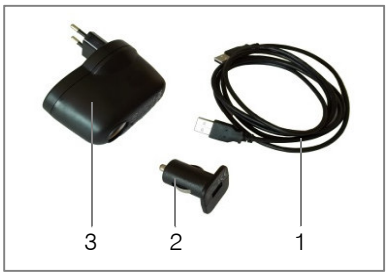


Figure 8

Lithium polymer battery pack should be charged only by means of the supplied accessories (Figure 8). Accessories for charging the battery pack – USB cable (1), USB car charger (2) and AC/DC adapter (3) – are placed in the carrying case.
The USB car charger can be connected with a car-battery 12 V or by means of AC/DC adapter to mains 230 V / 50 Hz.

- **For charging Lithium polymer battery pack only the supplied chargers, which are provided for use with this device, should be used.**
- **Lithium polymer battery pack should not be charged over a longer period if it is not needed.**

Figure 9

Lithium polymer battery pack of measuring instrument should be charged before first use and in case that state of charge is 15% or lower.

Lithium polymer battery pack should be charged at the latest when the note on the left (Figure 9) appears on the screen of measuring instrument.

- Switch off measuring instrument and connect it with the USB car charger via USB cable.
- Connect the USB car charger to a car socket 12 V or via AC/DC adapter to mains supply 230 V / 50 Hz.
- Disconnect the charger from mains supply when charging of Lithium polymer battery pack has been finished.

It is not possible to overload the Lithium polymer battery pack, since it is equipped with an overload protection. When the battery pack is fully charged, the charging current entry is automatically interrupted.

The Lithium polymer battery pack will only be charged, in case that the measuring instrument is switched off.

Prepare Measurements

Install Loading mechanism

- Prepare the test site in compliance with the requirements of DIN 18 134, issue 2012.
- Place the load plate on the test site.
  ⇨ The opening of the measuring tunnel points into the direction from which the measuring finger of the measuring frame is inserted.
- Mount the load cell onto the pin of the load plate and the thrust piece onto the load cell.
- Attach the hydraulic cylinder to the pin of the thrust piece.
- Mount the ball-and-socket joint with magnetic holder to the loading vehicle.
- Use the extension pieces to adjust height differences.

Installation of Measuring Frame (refer to Annex 1)

- Mount the traverse (2) to the longitudinal beam of the measuring frame (3) and align with height adjustment (star grips).
- Remove the extension arm (1) from the bracket, insert it into the measuring frame and fix it by means of the 2 star grips.
- Insert the measuring finger into the measuring tunnel until the relevant mark is reached, and align horizontally by using the circular bubble.
- Place the dial gauge in the dial gauge bracket of the measuring frame and make settings it as appropriate (set to zero).

Connect Devices

Position measuring head

- Mount the measuring head to the traverse (magnetic fixture).

Connect the load cell

- Connect the load cell cable to the measuring head outlet labeled »Force«.

Connect the dial gauge (used for distance measuring)

- Connect the dial gauge cable to the dial gauge.
- Connect the dial gauge cable to the measuring head outlet labeled »Distance«.

Connect measuring instrument

- Connect the cable of measuring instrument to the measuring head.

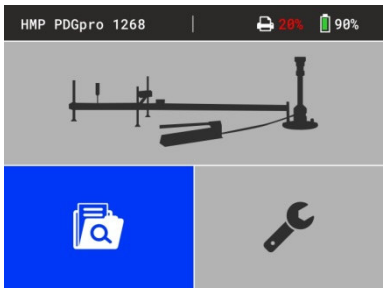


Figure 10

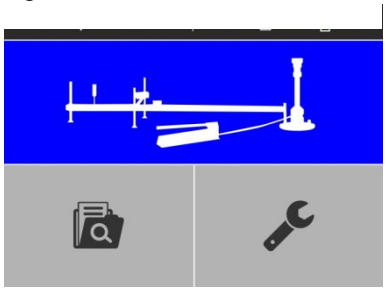


Figure 11

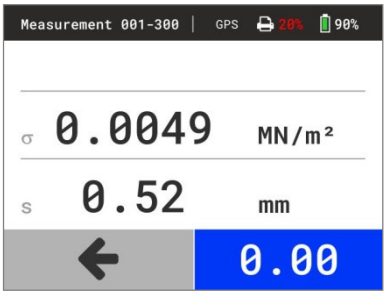


Figure 12

Measuring Procedure

For theoretical foundations of the measuring process please refer to DIN 18134, issue 2012.

Start Measurement

- Press the key to switch on the measuring instrument.
  - ⇨ Device will be powered up and GPS starts.
  - ⇨ The main menu (Figure 10) appears on the screen with type & number of device (xxxxx) and state of charge of the measuring instrument in status line as well as the several menu buttons in main area of display.
  - ⇨ Button »Measured data« is active until GPS data are determined.
  - ⇨ Then button »Measuring« will be activated (Figure 11) and »GPS« is displayed in status line.

GPS data are only available and they will only be stored with the test series, in case »GPS« is displayed in status line.

In case that measurement shall be carried out without recording the GPS data, then in the menu settings/device ✖ has to be chosen for GPS (⇨ page 18). Immediately after starting device the button »Measuring« is active and the measuring process can begin.

Before starting the measurement the desired measuring range (plate diameter) has to be chosen within the measuring instrument (➡ page 18).

- Confirm the button »Measuring« (Figure 11) by pressing the Enter key.
  - ⇨ The menu »Measuring« (Figure 12) is displayed on the screen: Number of the current measuring series and the current measuring range (plate diameter) (xxx-xxx)
    Compression (σ) #.#### MN/m²
    Settlement (s) #.## mm
    These values result from weight of testing equipment.

Measuring is not possible in case of full memory. A corresponding note appears.

Value 1

- Acknowledge button »0,00« by pressing the Enter key to tare the displayed values.
  - ⇨ The values 0.0000 MN/m² for compression and 0.00 mm for settlement appear on the display. By that offset values, if any, are cleared.
  - ⇨ Set value and MP01 for 1st measuring point are displayed.

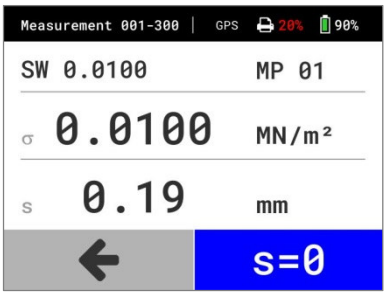


Figure 13

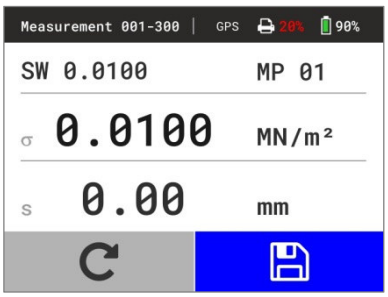


Figure 14

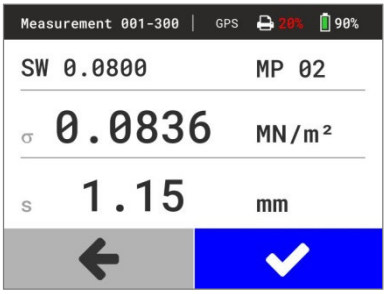


Figure 15

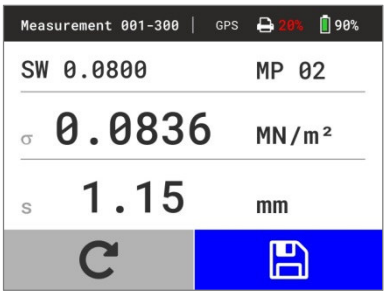


Figure 16

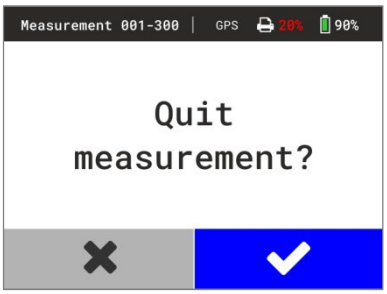


Figure 17

- Acknowledge Button »s=0« by pressing the Enter key after approaching the required preload, according to DIN 18134, issue 2012, to set the displayed value for the settlement to zero.
- The start value for the pressing and the zero value for the settlement appear on display (Figure 14). The local display on the dial gauge remains unaffected by this zero setting.
- By confirming button 🖫 these values are stored as first measured values.

Please refer to DIN 18 134, issue 2012 for the required number of measurements and set values to perform.
Set values according to DIN 18 134, issue 2012 are stored on the measuring device as orientation for the examiner, for load plates with diameter of 300 mm, 600 mm and 762 mm. The specific set values are displayed on the screen during measuring.

Perform Measurement

- Approach the set point with the hydraulic pump.
  (Operating Instructions Hydraulic System refer to Annex 2, page 24.)
  ⇨ The measured values for compression and settlement appears on the display (Figure 15).
  The number of the current measuring series and the current measuring range, the number of the current measuring point and also the set value for the pressing are displayed.
- Accept the values after the required waiting time by pressing the Enter key.
  ⇨ The values are frozen in the display.
- Confirm button 🖫 by pressing the Enter key to store the (frozen) measuring values for the current measuring point (Figure 16).
  ⇨ The current measured values are displayed on the screen again and the values for next measuring point can be captured.

In case the (frozen) values shall be discarded,
- select button ↻ and confirm.
  ⇨ The current measured values are displayed on the screen again and the values for the current measuring point can approached new.

Follow the procedure described above for any further set values.

Quit Measurement

All required measurements completed, the measuring procedure can be terminated.

- After storing of last measuring value select Button ← and confirm with Enter key.
  ⇨ The menu shown on the left is displayed on the screen (Figure 17).
- In order to return to the last measuring value and to continue the measurement select button ✖ and confirm.
- In order to quit the measurement select button ✔ and confirm.

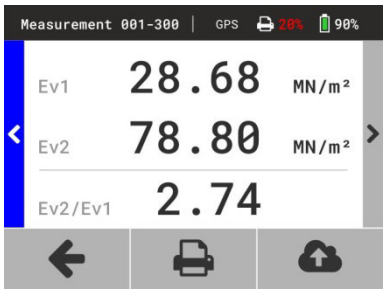


Figure 18

- When query »Save measurement?« is displayed confirm button ✔ again.
  - ⇨ Measuring series will be completed and stored, results will be calculated.
  - ⇨ The values of E_{V1}, E_{V2} and the ratio E_{V2}/E_{V1} are displayed on the screen (Figure 18).

After completing one measuring series it is possible to print out the current measuring series *(only devices with printer)* and also to display the curve data (pressure settling lines), the GPS position and the measured data.

In order to discard the complete measuring series,

- select button ✖ when query »Save measurement?« is displayed and confirm.
  - ⇨ Measuring series will not be stored. The main menu appears.

Error Menus

The measuring instrument provides instructions – to monitor the measuring procedure – which pop up as an error report before measurement or during the measurement.

The following error reports might appear before the measurement:

Error report	Error cause
σ c.error	no connection between measuring instrument and measuring head
σ error	no connection between load cell and measuring head
s error	no connection between dial gauge and measuring head or dial gauge is not switched on

- Check/establish the connections.
- Continue measurement as soon as the connections are correct.

The following error reports might appear during the measurement:

Error report	Error cause
σ 0.0000 MN/m²	In case that the required minimum value for compression is not reached according to DIN 18134, issue 2012, the value will be shown in red.

- Confirm button ↻ by pressing Enter key.
- Approach the required value for compression and continue measurement.

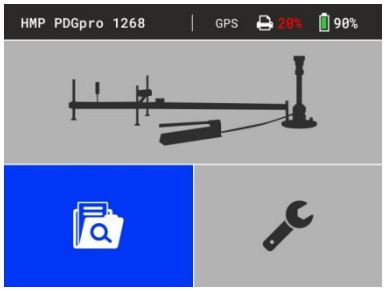


Figure 19

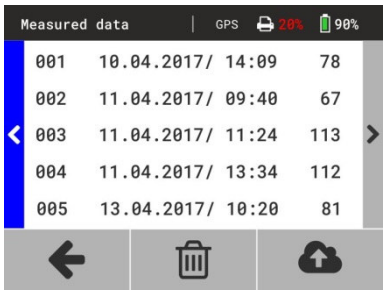


Figure 20

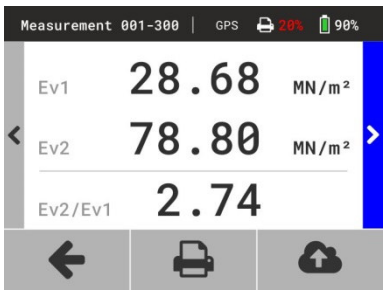


Figure 21

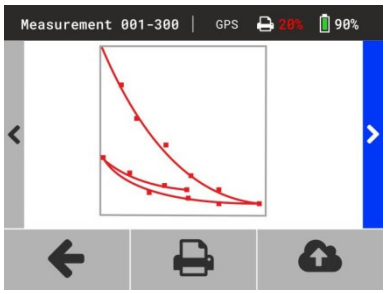


Figure 22

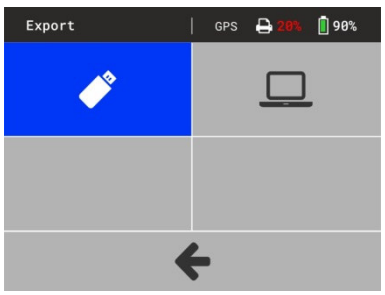


Figure 23

Reading / Printing Measured Data

The in the database stored test series and -results can be displayed via button (Figure 19) on the screen and printed out if required *(only devices with printer)*.

When no data are stored in memory, the button is without function.

Before using the thermal printerAP1300 please read the instruction manual (➡ page 19) and follow the instructions regarding putting into operation and handling.

- Select and confirm the button in the main menu.
  ⇨ The stored test series appear on the screen (Figure 20).

By confirming the buttons ❮ or ❯ with Enter more test series can be displayed.

- Choose the middle indicating area by means of the keys, select the desired test series by means of the keys and confirm by pressing the Enter key.
  ⇨ The results of the selected test series are displayed on the screen (Figure 21).

By confirming the buttons ❮ or ❯ with Enter the values of several measuring points, GPS position and settlement curves (Figure 22) can be displayed.

- Select button and confirm with Enter key.
  ⇨ Data of selected test series are printed.

GPS data will only be printed, in case GPS is enabled ✔ in menu Settings/Device and when GPS data are stored with the selected measuring series.

Export the Stored Measured Data

The test series and –results stored in the database can be transferred via USB interface to the supplied USB stick or to PC.

Data Transfer Measuring Instrument → USB Stick

- Connect the USB stick to the measuring instrument.
- Select within measuring instrument under menu measured data / export the transfer mode (Figure 23) and confirm with Enter key.
  ⇨ The data are being copied to the USB stick.
  ⇨ After completion of data transfer the measuring instrument switches off automatically.

To transfer the data from the USB stick to the PC see instruction manual »Protocol software for the Plate Load Tester **HMP PDG*pro***«.

Data Transfer Measuring Instrument → PC

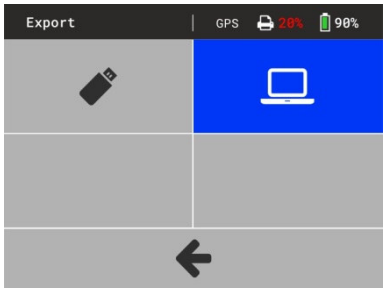


Figure 24

- Connect measuring instrument and PC via the supplied USB cable.
- Select within measuring instrument under menu measured data / export the transfer mode (Figure 24) and confirm with Enter key.
  ⇨ The measuring instrument works now just like removable media.
- After completion of data transfer switch off the measuring instrument and disconnect measuring instrument from PC.

To transfer data from measuring instrument to PC see instruction manual »Protocol software for the Plate Load Tester **HMP PDG*pro***«.

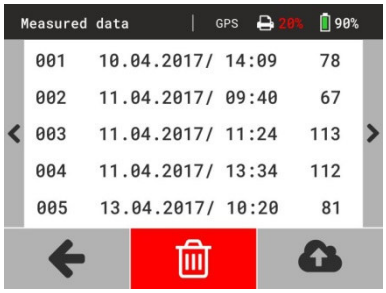


Figure 25

Delete Measuring Results

The test series and –results stored in data base can be deleted via Button .

- Select and confirm the button in the main menu.
- Confirm button by pressing the Enter key (Figure 25).
  ⇨ The menu on the left is displayed on the screen (Figure 26).
- Select button and confirm with Enter key.
  ⇨ All measurements will be deleted.
  ⇨ The main menu is displayed on the screen.

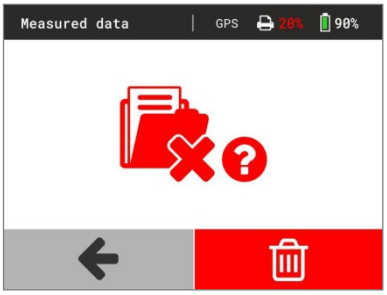


Figure 26

Stored series cannot be deleted individually.

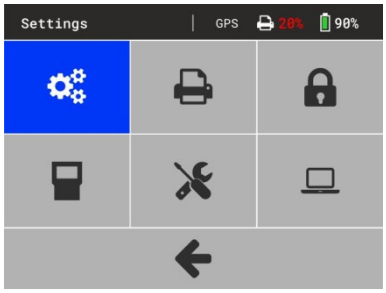


Figure 27

General

Via button in the main menu you can reach the menu settings (Figure 27), in which different display-, device- and printer settings can be carried out.

All carried out settings are only saved, when returning to the main menu. In case that the measuring instrument is switched off before, all modifications get lost.

Display

Figure 28

In menu »Display« settings for date, time and language can be carried out (Figure 28).

Set Date

- Select button »Date« and confirm with Enter key.
- Change the day by means of the keys.
- Select the month by pressing the key.
- Change the month by means of the keys.
- Select the year by pressing the key.
- Change the year by means of the keys.
- Confirm the current date setting by pressing the Enter key.

By pressing the Enter key the menu »date« can be left at any time.

- Select Footer by means of the or key and confirm with Enter key.
  ⇨ The menu »Settings« appears.
- Select Footer by means of the or key and confirm with Enter key.
  ⇨ The set date will be saved and the main menu appears.

Set Time

- Select button »Time« and confirm with Enter key.
- Change the minutes by means of the keys.
- Select the hours by pressing the or key.
- Change the hours by means of the keys.
- Confirm the current time setting by pressing the Enter key.

By pressing the Enter key the menu »Time« can be left at any time.

- Select Footer by means of the or key and confirm with Enter key.
  ⇨ The menu »Settings« appears.
- Select Footer by means of the or key and confirm with Enter key.
  ⇨ The set time will be saved and the main menu appears.

Select Language

- Press Enter key so often until the desired language appears.
- Select Footer ← by means of the ▲ or ▼ key and confirm with Enter key.
  ⇨ The menu »Settings« appears.
- Select Footer ← by means of the ▲ or ▼ key and confirm with Enter key.
  ⇨ The set language will be saved and the main menu appears.

Device

Figure 29

In menu »Device« the following settings can be carried out for device configuration (Figure 29):

Plate diameter	(300/600/762/Kraft)	set measuring range (∅ of load plate or force)
GPS	(✔ / ✖)	activate / deactivate GPS
Einheit	(MN/m² / MPa)	set unit
Calib.date	(✔ / ✖)	show / don't show calibration date on start screen

Printer

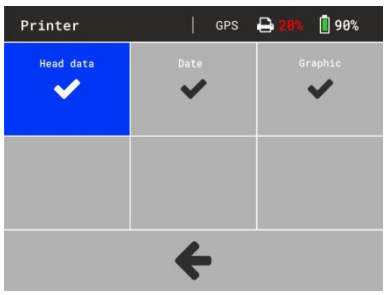


Figure 30

In menu »Printer« the following settings can be carried out for printer configuration (Figure 30):

Head data	(✔ / ✖)	print out protocol head (always active)
Date/time	(✔ / ✖)	print out date / time
Grafik	(✔ / ✖)	print out curve

Service

In menu »Service« various device information, which are relevant for HMP service, are indicated.

Calibration Menu

The menu »Calibration« is not available for users.

Maintenance Menu

The menu »Maintenance« is not available for users.

Thermal printer AP1300

Included in the **HMP PDG*pro*** scope of supply is a thermal printer AP 1300 (*optional*).

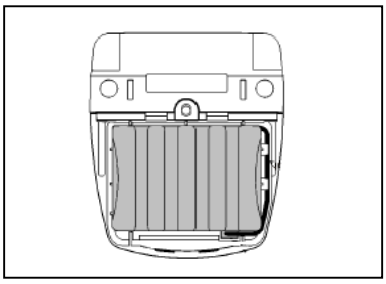


Figure 31

Power Supply

The printer can be operated independently from a power supply unit and is powered by a 1.8 Ah NiMH power pack housed in the printer (Figure 31). Thus, the printer can be carried from job to job.

Safety

- **The NiMH power pack is provided with an internal fuse unit. However, a short-circuit may occur when the NiMH power pack gets into contact with metallic items.**
- **The power pack must not be opened; otherwise it may leak out or a short-circuit may occur.**
- **Before you remove or replace the power pack, disconnect it from the external power pack charger.**

The power pack has to be charged only by means of the supplied power pack charger. The power pack charger can be connected with a car-battery 12–24V or by means of an AC/DC adapter to mains 230 V / 50 Hz. The AC/DC adapter is included in the delivery contents of measuring instrument **HMP PDG*pro***. Charger and adapter are placed in the carrying case.
The printer AP1300 is shipped with a connected and fully loaded power pack.

- **When the printer is used for the first time after a lengthy period or has been standing idle for a lengthy period, recharge the power pack prior to use.**
- **In the event of malfunction the printer may only be opened by authorised personnel.**

- **The supplied accessories must only be used for devices supplied by HMP and according to this instruction manual. Any other use may cause damages.**

Charging of power pack

- **For Changing the power pack it is only allowed to use the supplied power pack charger.**
- **Fully charging the power pack takes 15 hours at most.**
- **Use the power pack charger only indoors. Disconnect the device from the mains if it is not used. Do not operate the device in case of damage to the housing or the mains plug.**
- **Only charge nickel/metal hydride power packs; use of the charger for other batteries may cause an explosion hazard.**
- **Do not open the power pack charger.**

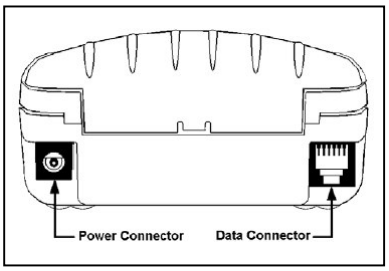


Figure 32

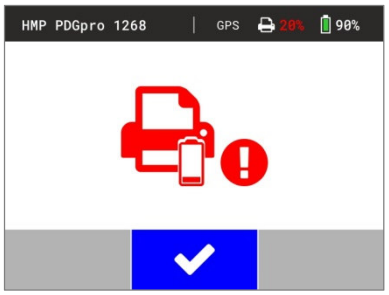


Figure 33

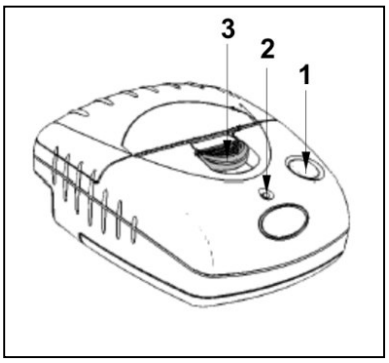


Figure 34

- Connect the power pack charger to the »Power Supply« connection of the printer (Figure 32).
- Connect the power pack charger to the mains supply.
- Disconnect the power pack charger from the mains supply when charging of power pack has been finished (after 15 hours at the latest).

State of Charge of the Printer

The state of charge of the printer is displayed in status line of display after switching on the measuring instrument.

The battery pack of the printer should be recharged as quickly as possible, when state of charge is 15% or less or in case the note on the left (Figure 33) appears on the screen of measuring instrument.

Front panel of printer

(Figure 34)

1 Paper feed

Single-line paper feed:
– Press the key for a short interval, and release.
Multi-line paper feed:
– Hold down this key until the desired length of paper is reached.

2 LED

Signals READY
LED off:
– The printer is in the power-saving mode.
– Power pack is discharged.
Green LED (steady):
– Printer is active.
Green flashing LED:
– Paper out.
Green – orange flashing LED:
– Power pack is charged.
Red – green flashing LED:
– Power pack voltage is too low.

3 Paper compartment opener

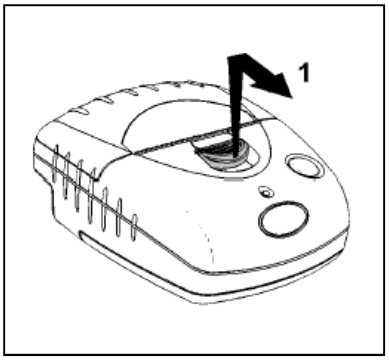


Figure 35

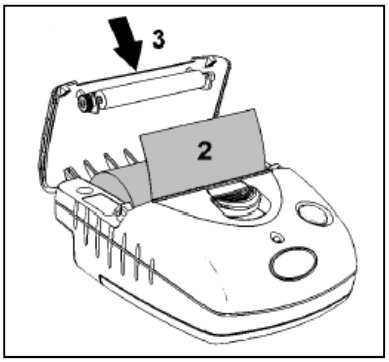


Figure 36

Insert Paper Roll

(Figure 35 and Figure 36)

- Push the paper compartment opener to the front until the printer lid opens (1).
- Unwind a few centimetres of the new roll and load the paper roll into the compartment such that the paper will unwind from below (2).
- Close the printer lid (3).
- Press the paper feed key to check the correct paper movement.
- Excessive paper is rapidly torn off by using the cutting edge.

The thermal printer AP1300 is provided with sensors to detect lacking paper or opened paper compartment. If a sensor is activated, the printer switches to the storage mode; all data transmitted to the printer are preserved. Printing is continued immediately as soon as the defect has been removed.

It is recommended using original paper rolls for thermal printer only, dimensions: ∅ 3 cm, width 5.7 cm (length of paper 10 m).

Malfunction

Printer fails to start printing:

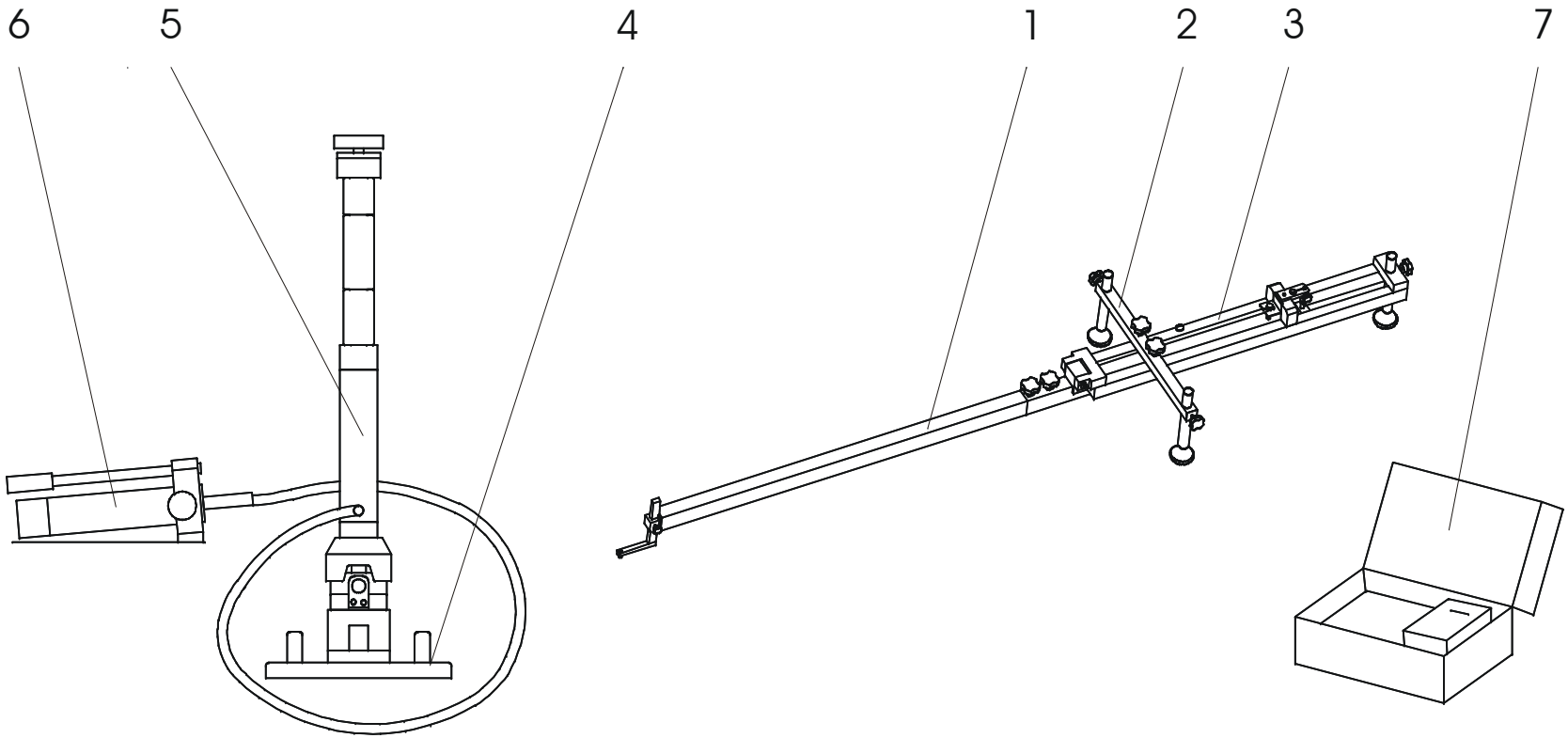
- Connection correct? Check connections/establish connection.
- Has the printer automatically switched on and is the LED on? Check, if the printer can be switched on manually.
- Is the power pack discharged? Charge the printer before use.

Calibration

In terms of DIN 18 134 re-calibration is required annually.

HMP Magdeburger Prüfgerätebau GmbH has calibrated instrumentation used to conduct force and distance calibrations. In addition, necessary repairs may be carried out.

Plate Load Tester spare parts



Nr.	Term
1	Extension arm with measuring finger
2	Traverse
3	Measuring frame
4	Load plate
5	Hydraulic cylinder
6	Hydraulic pump
7	Measuring case

Buchstabe	Änderung	Datum

zuläss. Abw. für Masse ohne Toleranzangabe

	Datum	Name
2004		
Bearb.	05.10.	Hietschold
Gepr.		

Halbzeug / Werkstoff

Benennung: Plate Load Tester

Masstab

Zeichnungsnummer: PDG 1000

Operating Instructions Hydraulic System

Parts of Hydraulic System

Hydraulic system comprises of parts by LUKAS Company:

- Hand pump ZPH 1A/1 PN 500
- Hydraulic cylinder LZM 10/160 PN 500
- Hydraulic hose DN6PN700-2000RT
- Quick coupler

The delivery includes operating instructions by LUKAS Company for hand pump, hydraulic cylinder and quick coupler (on CD).

Hydraulic system was installed complete and vented before delivery.

Using Hydraulic System

Before using the hydraulic system users have to read the operating instructions by LUKAS Company.
Users must observe all safety instructions and warnings, to avoid bodily injuries and damages of the system.

The pump lever must be locked for transport.

Advancing cylinder

- Close the drain valve on the pump by turning the hand wheel clockwise (to the right) to advance the cylinder.
- Unlock the pump lever and move it up and down to load pressure.

Also read the operating instructions of hand pump and hydraulic cylinder by LUKAS Company to get more information about advancing and retracting cylinder.

Retracting cylinder

- Open the drain valve on the pump by turning the hand wheel against clockwise (to the left) to release pressure or retract the cylinder. Turn the hand wheel slowly to have control over the load.

Release the pressure always slowly to have control over the load.

Maintenance

Information and tips with regard to

- maintenance
- adding oil to the pump, oil recommendations
- venting the cylinder
- troubleshooting

read in operating instructions by LUKAS Company.

EU Declaration of Conformity

within the meaning of the EU Directives

- 2014/30/EU Electromagnetic compatibility
- 2014/35/EU Low voltage
- 2011/65/EU Restriction of the use of certain hazardous substances

Das »Static Plate Load Tester«

Make:	HMP
Type:	PDG-SD, PDG*pro*, PDG-M
Serial-No.:	from No. 0824
Year manufactured:	2016

was developed, designed and manufactured in compliance with the above-mentioned EC Directives under sole responsibility of

Magdeburger Prüfgerätebau GmbH

The following harmonised standards have been applied:

EN 614-1	2006 +A1:2009	Safety of machinery – Ergonomic design principles – Part 1: Terminology and general principles
EN ISO 4413	2010	Hydraulic fluid power – General rules and safety requirements for systems and their components
EN ISO 12100	2010	Safety of machinery – General principles for design – Risk assessment and risk reduction
EN 50581	2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
EN 60335-2-29	2004 A2:2010	Household and similar electrical appliances – Safety – Part 2-29: Particular requirements for battery chargers
EN 61000-6-2	2005	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments
EN 61000-6-4	2007 A1:2011	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments
EN 61310-2	2008	Safety of machinery – Indication, marking and actuation – Part 2: Requirements for marking
EN 61310-3	2008	Safety of machinery - Indication, marking and actuation – Part 3: Requirements for the location and operation of actuators

A complete set of Technical Documentation is available. The Instruction Manual associated with the equipment and the operating instructions of the hydraulic components are available.

☒ in the original version
☒ in the language customary in user's country English

Magdeburg	08.11.2016	Hennings, Mangaging Director	
Place	Date	Undersigned and Position	Signature