DPL

Hultafors

Operating instructions **EN**

Hultafors App

INCLUDED IN DELIVERY WITH THE DPL

DPL
Belt pouch
AA battery

Operating manual
Digital Spirit Level DPL

About this manual

Congratulations on the purchase of your new DPL! You have acquired a Hultafors measuring instrument, which can make your work easier, faster and more precise. To utilize the complete functionality range of this measuring instrument, and to ensure safe operation, please observe the following instructions:

- Please read this operating manual before starting to use the device.
- Always keep the operating manual near the device.
- Only hand over the device to other users together with the operating manual.
- Never render the attached warning signs unreadable.

Contents

1. General information

1.1 Signal words and their meaning

DANGER

For an imminent danger that could lead to serious injury or death.

WARNING

For a possibly dangerous situation that could lead to serious injury or death.

CAUTION

For a possibly dangerous situation that could lead to slight injury or property damage.

NOTE

For application notes and other useful information.

1.2 Pictograms and other information

1.2.1 WARNING SIGNS

Warning of dangers in general.

1.2.2 SYMBOLS

Read instructions before use.

Batteries and devices must not be disposed of with household waste.

Do not throw batteries into a fire.

Warning signs on battery: Do not heat the battery above 60 °C.

2. Description

1. On/Off switch
2. Hold function (measurement is retained by pressing once) / Toggling between ABS (absolute) and INC (incremental)
3. Mode button for switching between measured value settings (°, mm/m, %, in/ft)
4. Calibration
5. Changing the display resolution

3. Technical data

Gradient module	
Max. measurement tolerance	
-0° – 90°	± 0.05°
-1° - 89°	± 0.20°
Protection class	IP 52
Power supply	1 x AA battery
Battery life (at 20°C)	65 h (if display light switched off, approx. 80h)
Permissible temperatures	
Operating temperature	-10°C to +50°C
Storage temperature	-20 °C to +60 °C

4. Safety instructions

4.1 Area of responsibility

4.1.1 MANUFACTURER

Hultafors is responsible for the safe delivery condition of the product, including the operating manual and the original accessories.

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Hultaforsvägen 21
517 21 Bollebygd, Sweden

4.1.2 OPERATOR

The operator is responsible for using the product as intended, the deployment of personnel, their training and the operational safety of the product.

- The operator understands the safety information which is stated on the product and the instructions which are contained in the operating manual.
- The operator shall comply with local regulations relating to safety and accident prevention regulations as well as worker protection laws and regulations.
- The operator shall immediately notify Hultafors if safety-related issues should develop on the product or during its utilization.
- The operator shall ensure that the product is not utilized any further if defects become evident, and he will have the product repaired professionally.

4.2 Improper Use

- Use of the device and the accessories without instruction.
- Use of third-party accessories or additional equipment.
- Use outside of the intended limits (see Chapter 3 Technical data).
- Use under extreme temperature fluctuations without an adequate acclimatization.
- Disabling of safety devices and removal of hazard notices and labels.
- Unauthorized opening of the device.
- Performance of modifications or alterations the device or the accessories.
- Deliberate blinding of third parties.
- Inadequate safeguarding at the installation site.

4.3 Utilization limitations

The DPL is suitable for a continuous use in an atmosphere which can be inhabited by humans.

- Do not operate the product in explosion-prone or corrosive environments.
- Inform the local safety authorities and safety experts before working in hazardous environments, in close proximity to electrical installations or similar surroundings.

4.4 Usage Hazards

4.4.1 GENERAL

WARNING
Missing or incomplete instructions may result in improper or incorrect use. This can cause accidents with serious damages to persons, property, assets and the environment.

- Follow the manufacturer‘s and operator‘s safety instructions.
- Protect equipment and accessories from access by children.

CAUTION
A fall, longer storage, transportation or other mechanical effects can lead to erroneous measurement results. Check the unit for damage before use. Do not use damaged equipment.

- Repairs have to be exclusively performed by Hultafors.
- Before use, check the accuracy of the device (see Chapter 8 Checking the accuracy).

4.4.2 CHARGER/BATTERIES/RECHARGEABLE BATTERIES

DANGER
Strong mechanical influences, can lead to a leakage, fire or explosion of the batteries or trigger the release of toxic substances.

- Batteries and rechargeable batteries may not be opened or exposed to mechanical loads.
- Damaged batteries, chargers and charging stations may not be used.
- Repairs have to be exclusively performed by Hultafors.

WARNING
High ambient temperatures and immersion into liquids can cause a leakage, fire or explosion of the batteries or trigger the release of toxic substances.

- Protect batteries and rechargeable batteries from mechanical influences during transport.
- Do not overheat batteries and rechargeable batteries or expose them to fire.
- Avoid the ingress of moisture into batteries and rechargeable batteries.
- Do not use damaged batteries or rechargeable batteries. Perform a proper disposal (see Chapter 11 Disposal).

WARNING

A short-circuiting or unintended use can cause batteries to overheat and create an injury or fire hazard.

- Do not transport or store batteries in the pockets of garments.
- Do not bring the battery contacts in contact with jewelery, keys, or other electrically conductive objects.
- Do not charge non-rechargeable batteries.
- Do not discharge the batteries through short-circuiting.
- Do not solder the batteries within the device.
- Do not mix old and new batteries, and do not mix batteries from different manufacturers or with a differing type designation.

WARNING

If disposed of improperly third parties can possibly be seriously injured and the environment polluted. The burning of plastic components generates toxic fumes which may impair the health of people. Batteries/rechargeable batteries may explode if they are damaged or heated excessively, and thereby cause poisoning, burning, corrosion or environmental contamination.

If disposed of negligently unauthorized persons are able to use the product improperly.

- The product must not be disposed of together with household waste. Dispose of the device and accessories properly (see Chapter 11 Disposal).
- Protect the product at all times from access through unauthorized persons, especially children.

4.5 Electromagnetic compatibility (EMC)

The electromagnetic compatibility is the ability of the product to function in an environment where electromagnetic radiation and electrostatic discharges are present, without causing electromagnetic interference to other devices.

4.5.1 INTERFERENCE OF OTHER DEVICES BY DPL

Although the product meets the strict requirements of the relevant directives and standards, Hultafors can not completely exclude the possibility of interference with other devices (for example, when using the product in combination with third-party devices, such as field computers, personal computers, wireless devices, mobile phones, certain cables or external batteries).

- When using computers and radio equipment make sure to observe the vendor-specific information about electromagnetic compatibility.
- Only use original Hultafors equipment and accessories.

4.5.2 INTERFERENCE OF THE DPL BY OTHER DEVICES

Although the product meets the strict requirements of the relevant directives and standards, Hultafors can not entirely exclude the possibility that intense electromagnetic radiation in the immediate vicinity of radio transmitters, two-way radios, diesel generators, etc. can distort the measurement results.

- When performing measurements under these conditions check the plausibility of the results.

4.6 FCC statement

WARNING

The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user‘s authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. The following two conditions apply for operation: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE

This device has passed the compliance test for limits for a digital class B device as per Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

NOTE

This device produces and uses radio-frequency energy and can also emit it. If it is not installed and used according to the instructions, it may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Realign the receiving antenna or set up in a different location.
- Set up the device further away from the receiver.
- Plug the device into a different electrical outlet.
- Seek advice from the distributor or a technical expert.

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

4.7 Use of the product with Bluetooth

WARNING

Electromagnetic radiation can cause disturbances in other equipment, in installations (e.g. medical ones such as pacemakers or hearing aids) and in aircraft. It can also affect humans and animals. Precautions: Although this product conforms to the most stringent standards and regulations, the possibility of harm to people and animals cannot totally excluded.

- Do not use the product near gas stations, chemical plants, in areas with an increased risk of explosion and where blasting takes place.
- Do not use the product near medical equipment.
- Do not use the product in airplanes.
- Do not use the product near your body for extended periods of time.

5. Getting Started

Prior to initial set-up, check whether the batteries have been installed correctly in the device.

Inserting batteries

1. Open the battery compartment cover.
2. Insert battery making sure that the poles of the battery are in the right position
3. Close the battery compartment cover.

Only use type AA batteries!
Remove the batteries if the instrument is not used over a longer period of time.

6. Operation

6.1 Switching On/Off

On:

Press the “On/Off switch” to switch on the gradient module.

Off:

Press the “On/Off switch” for at least 2 seconds to switch off the gradient module.

6.2 Display

If the gradient spirit level is used in the inverted position (upside down – above your head), the display screen turns too so that the measurement can be read easily.

The display switches off automatically after 5 minutes, as soon as the device is no longer being moved.

6.3 Acoustic signal

By pressing the display circuit ° / mm / m /% / in / ft / on / off switch acoustic (signal at 0 °and 90 °) for more than 2 seconds the acoustic signaling is switched on. The closer the gradient spirit level gets to the standard position, the more rapid the frequency of the acoustic signal.
This function assists you with levelling work, where it is not possible for you to read the measurement from the display.

6.4 Hold function

The current measurement is frozen by pressing the “Hold function” once.
A previously measured value can be “frozen” on the display using this function.
The measurement remains unchanged until the “Hold function” button is pressed again.

6.5 Toggling between ABS and INC

You can toggle between ABS (absolute) and INC (incremental) by pressing the “Hold function” for more than 2 seconds.
In “ABS” (absolute) mode, the measurement result is displayed based on the device calibration. In contrast, in “INC” (incremental) mode, the measurement result is displayed based on a relative reference level.

For example, you can take a measurement on a 5° inclined plane in “ABS” mode and then toggle to “INC” function. In doing so, the measurement display is set to 0°. You can now take additional measurements based on this new zero value.
To leave “INC” mode, press the button again for 2 seconds.

6.6 Changing measurement display

- Press “Mode button° / mm / m /% / in / ft / on / off switch acoustic” (Signal at 0 ° and 90 °) to switch between ° / mm / m /% / in / ft.

6.7 Changing the display resolution

Press the “Hold function” and the “On/Off switch / Display light” button at the same time to change the resolutions between: 0.00° and 0.0°.

6.8 Bluetooth

Fast and efficient data transfer of measured values can be made directly to a smartphone via Bluetooth.

NOTE

To pair with a smartphone, launch the Hultafors measures app and connect using one of the function options.

Hultafors App

7. Calibration and adjustment

Calibration of gradient module

Calibration stage ① based on position 0°.

- Place the DPL with the measurement surface horizontally.
- Briefly press buttons ⏻ and HOLD.
- Display -1- appears on the screen.
- Press the ⏻ button briefly, display -1- flashes for approx. 5 seconds.
- Display -2- appears on the screen.
- Turn DPL again by 180°.
- Press the ⏻ button briefly, display -2- flashes for approx. 5 seconds.
- Measurement display appears on the screen, calibration stage 1 is complete.

8. Maintenance, storage and transportation

8.1 Cleaning

- Wipe off the dirt with a soft damp cloth.
- Do not use aggressive cleaning agents or solvents.
- Do not immerse the device into water!
- Clean and dry wet equipment, accessories and transport containers prior to packaging them. Only pack equipment again when it is completely dry.
- Keep plug connections clean and protected from moisture.

8.2 Storage

8.2.1 GENERAL

- The equipment may only be stored within the specified temperature limits (see Chapter 3 Technical data).
- After prolonged storage check the accuracy of the measuring device before using it.

8.2.2 BATTERIES/RECHARGEABLE BATTERIES

- To store the rechargeable battery remove it from the device or the charging station.
- The storage should preferably be in a dry environment at room temperature (see Chapter 3 Technical data).
- Protect from moisture and humidity. Dry wet or damp batteries before storage, or before usage.

- Before storing for extended periods, charge the battery to 80% capacity (see Chapter 7 Operation). Repeat the process every six months during storage.
- After storage, fully charge the battery.
- Check battery for any damage before use. Do not use damaged equipment.

8.3 Transport

8.3.1 GENERAL

- The device may be damaged by strong vibrations or by falling.
- Never transport the product loose. Always use the original packaging or an equivalent transport container.
- Switch off the measuring device before transporting it.
- Check the unit for damages before use.

8.3.2 BATTERIES/RECHARGEABLE BATTERIES

- When transporting or shipping batteries, the operator is responsible for complying with the applicable national and international laws and regulations.
- Before shipping, remove the batteries from the device.

9. Delivery contents and accessories

Delivery contents of DPL

DPL
Belt pouch
AA battery

Further information on accessories can be found at **www.hultafors.com**

10. Troubleshooting

Error	Possible cause	Remedy
Device is switched on, no display, screen not illuminated	• Battery flat • Battery inserted incorrectly • Device or switch faulty	• Replace battery • Insert battery correctly • Contact dealer and have device repaired
Display jumps or screen “frozen”	• Program error	• Remove battery, wait one minute, reinsert batteries
Irregular display screen	• Battery power low	• Replace battery
Device switches itself on Commissioning immediately out again	• Battery empty	• Battery empty

11. Disposal

If disposed of improperly third parties can possibly be seriously injured and the environment polluted.
The burning of plastic components generates toxic fumes which may impair the health of people.
Batteries/rechargeable batteries may explode if they are damaged or heated excessively, and thereby cause poisoning, burning, corrosion or environmental contamination.
If disposed of negligently unauthorized persons are able to use the product improperly.

Measuring tools, accessories and packaging must be recycled in an environmentally-friendly manner.

The product as well as the accessories – especially the batteries and rechargeable batteries – may not be disposed of with household waste.

- Ensure proper disposal of the device and the accessories.
- Only dispose of batteries in a discharged state.
- Observe the country-specific disposal requirements.

Only for EU countries

Electric tools may not be disposed of with household waste!
According to the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and its implementation in national law, no longer usable electrical and electronic equipment must be collected separately and recycled in an environmentally friendly manner.

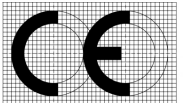
12. Manufacturer‘s Guarantee

“The manufacturer warrants to the original purchaser stated on the guarantee card, freedom from defects of the device for a period of two years, with the exception of batteries, as of the point in time the device is handed over. The guarantee is limited to repairs and/or replacements at the manufacturer‘s discretion. Defects which are caused through improper handling by the purchaser or third parties, natural wear and optical flaws that do not affect the usability of the equipment, are not covered by this guarantee. Claims under this guarantee can only be invoked if the device is submitted along with the guarantee card, completely filled out by the dealer, dated and provided with the company stamp.
If the guarantee claim is justified, the manufacturer shall bear the transport costs. The duration of the guarantee will not be extended through repair or spare parts work which is carried out within the scope of the guarantee.
Further claims are excluded, unless these are stipulated by the respective by the respective national legislation. In particular the manufacturer shall not be liable for any direct, indirect, incidental or consequential damages, losses or expenses in connection with the use or because of the inability to use the tool for any purpose whatsoever. Implied warranties for the usage or suitability for a particular purpose are expressly excluded.”

13. EC conformity declaration

Hultafors

Declaration of Conformity



We **Hultafors Group AB, Hultaforsvägen 21, Hultafors**

declare under our sole responsibility that the Product(s)

DPL

to which this declarations relates is in conformity with the following standards.

EMC	**EN61326-1:2013**
	EN61326-2-2:2013
	EN 55011:2009+A1:2010
Radio transfer	**EN 301489-1 V2.1.1**
	EN 301489-17V3.1.1
	EN 300328 V2.1.1
	EN 62479:2010

Following the provisions of Directive(s)

Electromagnetic compatibility 2014/53/EU

JUNE 2021 v.1

Hultafors