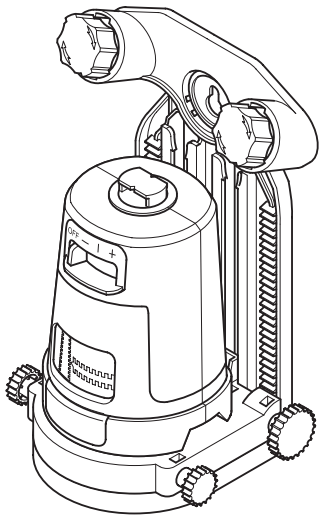


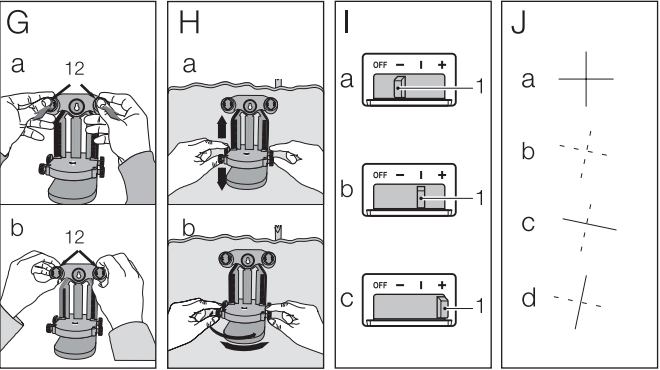
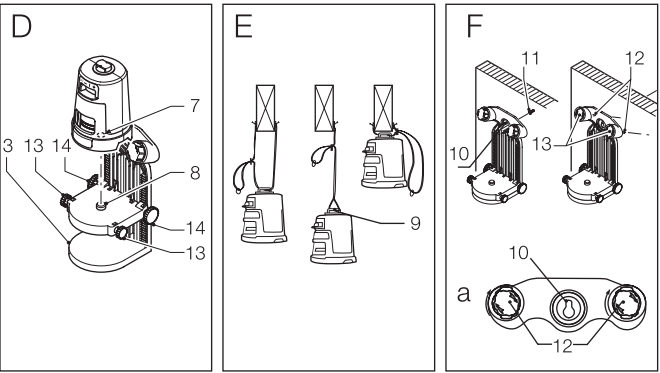
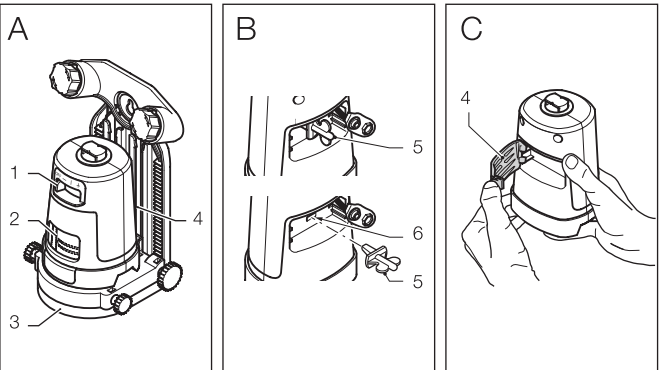


BDL310S

www.BlackandDecker.com

This manual is applicable for -TW, -A9, -B1, -XD & -KR only

Black & Decker Copyright 2006 (AUG-06)



Crossfire™ Auto-Leveling Laser BDL310S

Technical Data

		BDL310S
Voltage	V	9 (alkaline battery)
Battery Size		6LR61
Laser Power	mW	<5
Laser Class		3R
Wave Length	nm	633-670
Self Leveling Range	Degree	± 5
Accuracy		± 3mm @ 6m
Operating Temperature	°C	0-40
Weight	kg	0.45

Intended Use

This Black & Decker tool has been designed to project laser lines to aid in DIY applications. This tool is intended for consumer use only.

Safety Instructions

- Warning!** When using battery-powered tools, basic safety precautions, including the following, should always be followed to reduce the risk of fire, leaking batteries, personal injury and material damage.
- Read this entire manual carefully before operating the tool.
- Retain this manual for future reference.

The following symbols are used throughout this manual:

- Denotes risk of personal injury, loss of life or damage to the tool in case of non-observance of the instructions in this manual.
- Denotes risk of electric shock.
- Fire hazard.

- Keep work area clean.** Cluttered areas and benches can cause accidents.
- Consider work area environment.** Do not expose the tool to rain. Do not use the tool in damp or wet conditions. Keep the work area well lit. Do not use the tool where there is a risk of causing fire or explosion, e.g. in the presence of flammable liquids and gases.
- Keep children away.** Do not allow children, visitors or animals to come near the work area or to touch the tool.
- Do not overreach.** Keep proper footing and balance at all times.
- Stay alert.** Watch what you are doing. Use common sense. Do not operate the tool when you are tired.
- Use appropriate tool.** The intended use is described in this instruction manual.

- Warning!** The use of any accessory or attachment or performance of any operation with this tool other than those recommended in this instruction manual may present a risk of personal injury.
- Check for damaged parts.** Before use, carefully check the tool for damage. Ensure that the tool will operate properly and perform its intended function. Do not use the tool if any part is damaged or defective.
- Store idle tools.** When not in use, tools and batteries should be stored in a dry, locked up or high place, out of reach of children.
- Repairs.** This tool complies with relevant safety requirements. Repairs should only be carried out by qualified persons using original spare parts; otherwise this may result in considerable danger to the user.

Additional Safety Instructions for Non-rechargeable Batteries

- Never attempt to open for any reason.
- Do not store in locations where the temperature may exceed 40 °C.
- When disposing of batteries, follow the instructions given in the section "Protecting the Environment". Do not incinerate the batteries.
- Do not charge batteries.
- Remove dead batteries immediately and dispose of per local codes.
- Remove batteries if the device will not be used for several months.
- Under extreme conditions, battery leakage may occur. When you notice liquid on the batteries, proceed as follows:
 - Carefully wipe the liquid off using a cloth.
 - Avoid skin contact.

Additional Safety Instructions for Lasers

Read this entire manual carefully.

This product is not to be used by children under 16.

Warning! Laser radiation.

Do not look into the laser beam.

Do not view the laser beam directly with optical instruments.

Refer to the laser product characteristics.

- This laser complies with class 2 according to IEC 60825-2001. Do not replace a laser diode with a different type. If damaged, have the laser repaired by an authorized repair agent.
- Never look into the laser beam directly and intentionally. Serious eye injury can result.
- Do not use optical tools to view the laser beam.
- Do not set up the tool at a position where the laser beam can cross any person at head height.
- Do not let children come near the laser.
- Do not disassemble. Modifying the product in any way can increase the risk of laser radiation.

Features (Fig. A)

- On/off switch
- Laser apertures
- Mounting bracket
- Battery cover

Assembly

Warning! Make sure that the tool is switched off.

Removing The Locking Key (Fig. B & C)

The locking key (5) prevents damage to the laser head during transportation.

- Remove the battery cover (4) from the tool.
- Twist the locking key (5) 1/4 turn and remove it.
- To re-fit the locking key, place the key into the hole (6) as shown and twist it 1/4 turn.
- Refit the battery cover and let it click into place.

Fitting The Battery (Fig. B & C)

- Remove the battery cover (4) from the tool.
- Connect a fresh 9V battery to the connector. The larger battery terminal connects to the smaller connector terminal.
- Refit the cover and let it click into place.

Installing The Tool (Fig. D & E)

The tool can be installed on a horizontal surface such as a floor or a table. Alternatively, the laser head can be mounted to a wall using the bracket (3). The laser head can also be hung from a joist or other secure structure using a hanging strap.

Note: the laser lines will only be level if the tool is kept within 5° from vertical. If the tool is kept outside the level range, the projected laser lines become dashed instead of solid.

- Re-adjust the position of the tool if any or both lines are dashed.

Fitting The Tool To The Mounting Bracket (Fig. D)

- Mount the bracket (3) to a wall following one of the procedures as described below.
- Install the unit by clinging the magnet (7) to the steel knob (8).
- To remove the unit from the bracket, pull the unit off the steel knob.

Hanging The Laser Head (Fig. E)

- Thread the hanging strap through the slot (9) in the top of the tool and fasten the hook as shown.
- Adjust the tool so that it hangs relatively straight.
- CAUTION:** Make sure laser is securely suspended by the strap.

Wall Mounting (Fig. F & G)

The unit can be mounted to walls using one of the mounting facilities of the bracket (3).

Keyhole Wall Mount

- The keyhole (10) is used for mounting to most wall constructions.
- Drive a screw or nail (11) into the wall.
- Hang the bracket onto the fastener (11) by the keyhole (10).
- Fit the tool to the bracket.

Wall Pins

CAUTION: Pins are sharp and should be handled with care.

If the unit is mounted to drywall or other soft materials, the wall pins (12) can be used:

- Hold the bracket in front of a suitable location.
- Twist the knobs (13) clockwise until they stop and press the pins (12) straight into the wall (Fig. Fa).
- Fit the tool to the bracket.
- To release the pins, twist the knobs (12).

Important: when attaching (Fig. Ga) or removing (Fig. Gb) the bracket, be sure to push in or pull out with even pressure on both push pins.

Use

- Before attempting to use the laser, make sure the tool is positioned on a relatively smooth, flat and stable surface.
- Brightness of area may affect line visibility.
- When attaching to a mounting bracket or using the hanging strap, mount the laser securely.
- Be aware that extreme temperature changes can cause movement or shifting of building structures, tripods, equipment, etc. This may affect accuracy. Verify your set-up before each use as the laser may have moved.
- Extreme temperature changes may affect the adjustment of the unit.

Adjusting The Laser Lines (Fig. H)

The adjusting knobs on the mounting bracket facilitate adjustment of the laser lines.

- The horizontal or level laser line can be elevated by turning either of the right or left adjustment knobs located at the rear of the moveable platform (Fig. Ha).
- The vertical or plumb laser line can be rotated to the right or left by turning either of the knobs located at the front of the platform (Fig. Hb).

CAUTION: When making any laser line adjustments be sure to look at the target laser line and not at the unit. Do not stare into the laser beam.

Switching On And Off (Fig. I)

- To switch the tool on, slide the on/off switch (1) to the right into the desired operating mode.
- To switch the tool off, slide the on/off switch to the utter left position.

Selecting The Operating Mode (Fig. I)

- In order to project a horizontal line, slide the switch (1) to position a.
- In order to project a vertical line, slide the switch (1) to position b.

- In order to project a crosshair, slide the switch (1) to position c.

Out of Level Indicators (Fig. J)

The laser is equipped with "out of level indicators" which break solid laser lines into dashed lines when unit is tilted out of auto-leveling range $\pm 5^\circ$. Always use both lines to verify straightness of laser. Unit should be adjusted if any or both lines are broken or dashed. Figure Ja shows laser lines within auto-leveling range. Figures Jb, Jc and Jd show laser lines out of auto-leveling range.

Troubleshooting

Problem	Possible Cause	Solution
Laser does not project on wall or laser beam dim	Weak battery	Replace with fresh battery.
Laser lines are projected as dashed lines.	The self leveling range of the unit is ± 5 degrees. If the unit is not set within 5 degrees of vertical, one of the laser lines will project on wall as a dashed line.	Be sure that the unit is as straight up and down as possible.
Laser lines are projected but one line is solid and one line is dashed.	The self leveling range of the unit is ± 5 degrees. If the unit is not set within 5 degrees of vertical, one of the laser lines will project on wall as a dashed line.	Be sure that the unit is as straight up and down as possible.
One laser line projected on wall is solid but not level.	The self leveling range of the unit is ± 5 degrees. If the unit is not set within 5 degrees of vertical, one of the laser lines will project on wall as a dashed line. Dashed line is not turned on.	Be sure that the unit is as straight up and down as possible. Turn the second laser line on to verify laser alignment.

Cleaning And Maintenance Storage

Always store the laser indoors with the switch in the "OFF" position. When storing it for extended periods of time, remove the battery and replace the locking key (5).

Cleaning

Your tool has been designed to operate over a long period of time with a minimum of maintenance. Continuous satisfactory operation depends upon proper tool care and regular cleaning.

- To clean the tool, use only mild soap and a damp cloth. Never let any liquid get inside the tool and never immerse any part of the tool into liquid.

Important

To ensure product SAFETY and RELIABILITY, repairs, maintenance and adjustment (other than those listed in this manual) should be performed by authorized service centers or other qualified organizations, always using identical replacement parts. Unit contains no user serviceable parts inside.

Protecting The Environment

- Separate collection. This product must not be disposed of with normal household waste.

Should you find one day that your Black & Decker product needs replacement, or if it is of no further use to you, do not dispose of it with household waste. Make this product available for separate collection.



Separate collection of used products and packaging allows materials to be recycled and used again.

Re-use of recycled materials helps prevent environmental pollution and reduces the demand for raw materials.

If necessary, contact your local municipality for proper disposal instructions in your city/town.

Battery

At the end of their useful life, discard batteries with due care for our environment.

- Remove the battery as described above.
- Place the battery in a suitable packaging to ensure that the terminals cannot be short-circuited.
- Take the battery to a local recycling station.

Service Information

Black & Decker offers a full network of company-owned and authorized service locations throughout Asia. All Black & Decker Service Centers are staffed with trained personnel to provide customers with efficient and reliable power tool service.

Whether you need technical advice, repair, or genuine factory replacement parts, contact the Black & Decker location nearest to you.

Notes

- Black & Decker's policy is one of continuous improvement to our products and, as such, we reserve the right to change product specifications without prior notice.
- Standard equipment and accessories may vary by country.
- Product specifications may differ by country.
- Complete product range may not be available in all countries. Contact your local Black & Decker dealers for range availability.

Crossfire™ 全自動十字雷射水平儀 BDL310S

技術數據

		BDL310S
電壓	伏	9 (鹼性電池)
電源		6LR61 乾電池
能量	毫瓦 (mW)	<5
雷射級別		3R
波長	奈米 (nm)	630-675
自動水平範圍	度	± 5
準確度		± 3 毫米@6米
使用溫度	攝氏 (°C)	0-40
重量	千克	0.45

設計用途

本百得工具使用投射雷射束來定位水平面和垂直面，此乃一非專業用途工具。

安全指引

當使用電動工具時，必須遵循當地安全規則以減少導致火災、觸電和人身傷害的危險。請在操作本產品前閱讀並理解本操作手冊；並把本手冊妥善保存！

下列標誌會在本說明書中使用：

- 表示如不依本說明書指示操作，會有人身傷亡、工具損壞的危險。
- 表示會有電擊的危險。
- 表示會有火災危險。

- 保持工作區清潔。** 凌亂的工作區和工作檯，會導致人身傷害。切勿在危險環境中使用電動工具。切勿在潮濕的環境使用電動工具。切勿使用電動工具到雨淋。工作區要保良好照明。若有導致火警或爆炸的風險，切勿使用電動工具。
- 勿讓孩童接近。** 切勿讓參觀者接觸工具或延長線，所有參觀者都要與工作區保持安全距離。
- 切勿伸展過遠操作。** 雙腳站穩，隨時保持平衡。
- 保持警覺。** 留意您的工作，運用您的常識，疲倦時勿使用電動工具。
- 使用適當的工具。** 本工具的正确用途已詳列在本說明書內。切勿適用小的工具或附件重型的工作，按設計的速度使用工具，工效較高，也比較安全。不要施加壓力。
- 警告！** 使用未經本說明書推薦的配件，可能造成人身傷害。
- 檢查損壞的零件。** 使用工具前，應該仔細檢查安全護罩或其他部件，確認能正常運作，執行其原設計功能。切勿使用任何部件損壞的工具。
- 妥善儲藏閒置工具。** 工具在非使用期間，應貯藏在乾燥及高的位置並鎖上以防孩童玩耍。
- 祇有合格的維修人員，方可維修工具。** 本工具符合相關的安全需求，必須由合格人員進行維修或維護，並使用相同的零件更換，否則，可能會對用戶構成危險。

非充電電池的附加安全守則

- 無論任何情況下，切勿打開電池。
- 切勿把電池貯藏在溫度40°C以上的地方。
- 如要廢棄電池，請參閱下文“環境保護”。切勿焚燒電池。
- 切勿為非充電電池充電。
- 卸下耗盡的電池並按當地條例廢棄。
- 若工具不會在數月內使用，請先把電池卸下才貯藏工具。
- 在極端的情況下，電池可能會少量液體流出。若發現電池外部密封破裂：小心以布抹掉液體，避免液體沾到皮膚上。

使用雷射水平儀的附加安全守則

小心閱讀並理解本說明書。

本工具只可由十六歲以上人士使用。

警告！ 雷射輻射。

切勿直望雷射光束。

切勿透過光學儀器望向雷射光束。

參考雷射產品的特性。

- 本雷射水平儀採用二級雷射射，合乎國際安全標準IEC60825-2001。切勿更換使用不同種類的雷射二極體；若有損壞，應由專業的維修人員修理。
- 切勿使用本水平儀進行設計用途外的工作。
- 切勿故意或直望雷射光束，這會嚴重損害眼睛。
- 切勿透過光學儀器望向雷射光束。
- 切勿將雷射束射向眼睛等高。
- 切勿讓孩童接近雷射水平儀。
- 切勿拆開水平儀，為水平儀作任何修改會增加輻射的危險。

部件 (圖A)

- 開關
- 雷射光束孔
- 掛牆架
- 電池蓋

組裝

警告！ 確保工具電源已關掉。

卸下腳墊 (圖B及C)

- 腳墊(5)可在運輸雷射水平儀時保護它免致損壞。
- 打開電池蓋(4)。
- 旋轉腳墊(5)1/4圈，然後把它拔出。
- 要裝回腳墊，把腳墊如圖插回孔(6)內，再轉1/4圈。
- 把電池蓋再裝回原位，確保它“喀喀”到位。

裝上電池 (圖B及C)

- 打開電池蓋(4)。
- 把新的九伏電池接入電池接頭，電池上大的接頭端應與工具上小的電池接頭連接。
- 把電池蓋再裝回原位，確保它“喀喀”到位。

安裝雷射水平儀 (圖D及E)

本水平儀可放在如地面或桌子的平面上使用，又把水平儀利用掛牆架(3)安裝在牆上。水平儀還可用掛帶等物掛在牆壁上使用。

注意：水平儀必須垂直雷射光束5°範圍內才可定平，若水平儀超過5°範圍，雷射光束會射出虛線而非直線。

- 如發現雷射束射出虛線，請調整水平儀的位置。

把水平儀裝在掛牆架上 (圖D)

- 把掛牆架(3)如下文所述安裝在牆上。
- 把水平儀底部的磁片(7)黏住掛牆架上的金屬鈕(8)。
- 要把水平儀由掛牆架卸下，把水平儀拉出便可。

把水平儀掛起來 (圖E)

- 用掛帶穿過水平儀上端的孔(9)內，如圖把它繫固。
- 調整水平儀直至它垂直。

警告：確保水平儀不會掉下來。

掛牆 (圖F及G)

本水平儀可利用掛牆架(3)安裝在牆上。

利用鑰匙孔掛牆

可利用鑰匙孔(10)懸掛在大多數牆壁上。

- 在牆上打一個釘子或螺絲(11)。
- 把掛牆架上的匙孔(10)扣在釘子或螺絲上(11)。
- 再把水平儀裝在掛牆架上。

掛牆針

警告：掛牆針很尖銳，要避免給刺傷。

- 若將掛牆架裝在石膏板或其他軟物料上，請使用掛牆針(12)：
- 把掛牆架放在適當的位置。
- 順時針方向旋轉旋鈕(13)並把針(12)直接按下牆身 (圖Fo)。
- 再把水平儀裝在掛牆架上。

敬告：無論安裝 (圖Go) 或卸下 (圖Gb) 掛牆架時，兩手的力度都應均勻。

使用

- 在使用水平儀前，請把它放在較平滑及穩定的表面。
- 室內的光線可能影響雷射光束的能見度。
- 當使用掛牆架或掛帶把水平儀掛起來，要確定它位置穩固才可使用。
- 留心極端的溫度能導致建築結構、三腳架、儀器等輕微改變位置，這會影響水平儀的準確性，所以使用前必先檢查設定。
- 在極端的溫度下可能影響水平儀的調節的準確性。

調整雷射光束 (圖H)

掛牆架上的旋鈕可幫助調節雷射光束。

- 旋轉掛牆架升降台後部的左右其中一個大旋鈕可調整水平線上升下降 (圖Ha)。
- 旋轉掛牆架升降台前面的左右其中一個小旋鈕可調整垂直線左右移動 (圖Hb)。

警告：當調整雷射光束時，應望向投射在牆上的雷射光束，切勿望向水平儀或直望雷射光束。

開關 (圖I)

- 要啟動水平儀，向右滑動開關(1)至所需使用模式位置。
- 要關掉水平儀，滑動開關(1)至最左位置。

選擇使用模式 (圖I)

- 要投射水平線，把開關(1)滑至a位置。
- 要投射垂直線，把開關(1)滑至b位置。
- 要投射十字線，把開關(1)滑至c位置。

未能水平顯示 (圖J)

本水平儀備有“未能水平顯示”，當水平儀時傾斜超過自動水平範圍 $\pm 5^\circ$ 時，水平儀所投射的雷射光束會由實線變成虛線。請同時用兩條雷射光束以確定光束是否平。若發現兩條或其中一條雷射光束成虛線，請調整水平儀。圖Jc表示雷射光束在自動水平範圍內，而圖Jb、Jc及Jd則不在自動水平範圍內。

常見問題

症狀	原因	解決方法
雷射光束未能投射至牆壁或光束微弱	電池將耗盡	更換新電池
雷射光束太虛線而非實線	本水平儀的自動水平範圍為 ± 5 度，若水平儀並非設定垂直5度內，其中一條雷射光束將變為虛線	確保水平儀垂直上下並無偏移
雷射光束投射一條實線，而另一條則是虛線	本水平儀的自動水平範圍為 ± 5 度，若水平儀並非設定垂直5度內，其中一條雷射光束將變為虛線	確保水平儀垂直上下並無偏移
雷射光束投射一條實線雷射光束，但並不水平	本水平儀的自動水平範圍為 ± 5 度，若水平儀並非設定垂直5度內，其中一條雷射光束將變為虛線，顯示虛線的雷射光束並未啟動	確保水平儀垂直上下並無偏移。 開啟第二條雷射光束以核實水平儀平定

清潔及維護

貯存

水平儀應貯存於室內，貯存前確保開關在“OFF”(關)的位置。當要長時間貯存水平儀，請先把電池卸下並裝上腳墊(5)。

清潔

本百得工具的設計使其可長時間使用而僅需最少的維護，要使工具有滿意的性能，需要長期正確的維護及清潔此工具。請勿嘗試自行維修本工具，請把它送到百得的指定維修服務中心去。

定期用濕布清潔工具外觀，但切勿使用溶劑。

重要說明

為了確保本工具安全可靠，只能由授權的維修服務中心或其他專業維修組織進行維修、保養及調整；同時亦必須使用相同的更換部件。本工具內並無用戶可自行更換的零件。

環境保護

本水平儀必須要與家居垃圾分開處理。

若某天您想更新工具或工具對您已無用處，切勿把它丟在家居垃圾中。



分開處理的廢物可令廢料有循環再造的機會。

將物料循環再造可避免環境污染及減少對原料的需求。

需要時，與當地的政府聯絡，索取有關處理廢物的資料。

電池

- 請小心處置已耗盡的電池以免污染環境。
- 如上文卸下電池。
- 把電池組妥善包裝好以免其短路。
- 把電池送到當地的回收中心。

維修資料

<

495672-00