

How to set 90 degree SQUARING with a Rotary Laser Level

The following description in this guide, explains the general principles of setting-out 90 degree squaring when using a rotary laser level. It speeds up the classic 3x4x5 triangle method, giving better accuracy and alignment over much longer distances.

This information is intended to be read in conjunction with your laser level's Instruction Manual.

Equipment:

You need a rotary laser level which is designed to set "squaring". It will have an extra dot beam out of the top of the rotating prism & can be either a red or green beam laser. In addition, you will require a matching laser detector (receiver), a target plate and preferably a remote control. You do not need a tripod nor staff. (Without a remote control; having another person to assist you, is useful.)

Site Conditions:

There are many different worksite scenarios. As an example, we are assuming that you have laid a concrete pad or completed your strip foundations (footings) and are ready to set out in one corner, 90 degree (squaring) for brickwork, blocks or timber framing, over a datum *mark*.

Procedure:

Place the laser in "*lay-down*" over your corner datum *mark*, on the concrete surface & switch ON. Wait for it to auto (self) level, then change to MANUAL. As this procedure is using "alignment" rather than "levelling" it is more convenient to use the laser in its Manual mode. See your laser's User Instructions - if necessary.

Next, remove the bracket from your laser detector. Switch the detector ON and lay it on its SIDE over a distant mark along one side of the concrete slab or strip footing. The pick-up window must be facing the rotating beam of the laser level. Using the remote control, direct the spinning beam to receive a continuous audible tone on the detector. This has aligned the laser beam exactly on the distant mark.

Next, observe the laser dot projecting from the rotating prism. This is now parallel with the concrete slab or footings along the other axis. Laser prisms are optically cut to split one laser beam - to accurately set 90 degrees. ie. Rotating beam in one axis and laser dot in the other, setting squaring.

The laser dot cannot be picked up with your detector. You need a target plate. Our recommendation is to use a small piece, say 300mm long white contiplus board, 6- 9 ins wide or similar. Using a black marker pen, draw a vertical line down the middle of the board. The white surface is an ideal target to "pick-up" the red (or green) dot at distance, even in bright sunlight. Hold the end face of the target board down onto the concrete footings, align the dot onto the black line and mark the concrete accordingly at appropriate intervals. **This has set 90 degree squaring.**

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User Tips:

Do not mount the laser level in “*lay-down*” on a surveying tripod. It must be positioned directly onto the concrete surface. If mounted on a tripod, it can potentially introduce an error or inaccuracy to the 90 degree squaring procedure.

Dot axis alignment:

Depending on your make/model of laser level, most have a light house cover over the prism with glass windows. When setting the laser dot axis, the depth of this cover (usually around 20-40mm) prevents you from running your line back to the datum *mark*. So simply mark two positions say 100mm & 1m away from the laser level & strike a line back under the laser’s cover to the datum *mark* to give the intersection of both axis.

Nb. The Spectra laser, model HV101 has a removable rotating prism cover.

Laser Levels Online Laser models with Squaring facility:

The following is a list of our current 2017 models...

Orient

SP200

Fukuda

FRE-301R

FRE-301G

FRE-102AR

FRE-102AG

FRE-208

Stabila

LAR250

LAR350

Spectra Precision

HV101

HV302

HV302G

UL633

**If you have any further questions or need more advice, then please contact our
Technical Team on 08000 869 769.**

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