

T330

Laser transmitter

User Guide



User Guide – English

Rotational Laser T330 (BG 830203)

We would like to congratulate you on the purchase of your Status Pro T330 Laser transmitter. Before initial usage you should carefully read the safety instructions as well as the user guidelines contained in this manual. We wish you every success when using this Measurement Instrument.

Please note: User Manuals can be amended when improvements or changes to the product range have been carried out. Use the link below to make sure you have the most up to date version of your User Manual: www.statuspro.com.



Content

| | |
|---|-----------|
| 1. SAFETY INSTRUCTIONS | 4 |
| 1.1 Class of Laser | 4 |
| 1.2 Standards | 5 |
| 1.3 Advice on batteries / rechargeable cells | 5 |
| 1.4 Instrument Care | 6 |
| 1.5 Maintenance | 6 |
| 1.6 Calibration and Repair | 7 |
| 1.7 Liability Exclusion | 7 |
| 2. GETTING STARTED | 8 |
| 2.1 The T330 Keypad | 8 |
| 2.2 Power Supply | 9 |
| 2.3 Starting the T330 | 10 |
| 3. MEASUREMENT | 11 |
| 3.1 Setting up the T330 | 11 |
| 3.2 Setting up the T330 | 13 |
| 3.3 Remotely controlling the Laser using infra-red | 14 |
| 3.4 Parallely aligning the laser plane using infra-red | 14 |
| 3.5 On-site or Field Calibration | 15 |
| 4. SIGNALS AND SPECIAL FEATURES | 18 |
| 4.1 Peeper | 18 |
| 4.2 Power-LED | 19 |
| 4.3 Levelling-LED | 19 |
| 4.4 LED ´s around the Laser Aperture | 20 |
| 4.5 Button Combination Features with the T330 Laser | 24 |
| 5. TECHNICAL DETAILS | 26 |
| 6. RC310 – REMOTE CONTROL | 27 |
| 6.1 Function keys on the RC310 | 27 |
| 6.2 Display of the RC310 | 28 |
| 6.3 Configuring the RC310 | 28 |
| 6.4 Communication between the RC310 and the R310 Sensor | 29 |
| 7. ACCESSORIES | 31 |
| 8. PRODUCTS AND SERVICES | 35 |

1. Safety Instructions

1.1 Class of Laser

The laser light emitted from a Status Pro Laser has an Output Rating of $< 1,0$ mW. The Laser is placed in the category „Class 2“ and is classified as safe for the use as a Measurement instrument. There are however a few safety aspects to be observed:



Caution!

- Do not stare into the laser beam.
- Do not point the laser beam at other people.
- Observe the local safety guidelines on site and if in doubt consult the site safety engineer.
- Do not use the equipment in damp or moist locations.
- Ensure shading of the equipment against direct sunlight or heat sources.
- Fluids or rain as well as extreme temperature conditions may damage the equipment.



Note

Do not violently shake the Laser or other sensors and always protect against falls. This can damage the structure or the optics of the instrument resulting in false measurements.
Do not touch rotating parts when in use!

1.2 Standards

All Status Pro Laser and Receiver Instruments are developed and manufactured according to the following CE Standards:

- EN 55 011
- EN 55 022
- EN 61 000-4-2
- EN 61 000-4-3
- EN 60 335



1.3 Advice on batteries / rechargeable cells

If the equipment is being stored for a longer period of time or being powered using mains, then the batteries should be removed to prevent damage of the instrument through leakage.

When using rechargeable cells always observe the specific charging procedures for the cells.

Rechargeable cells can be recharged around 1000times when treated correctly, but there is no guarantee!



Caution!

Do not try to recharge normal batteries. Do not expose batteries or rechargeable cells to fire or excess heat (danger of explosion).
Do not mix batteries and rechargeable cells.
Always use batteries and cells of the same kind.
Do not mix old and new batteries or cells.

**Note**

Help to protect the environment! Empty batteries do not belong in the household waste disposal system. Only deposit empty or damaged cells at a collection point specially designed for this purpose.

1.4 Instrument Care

Your measurement instrument is designed for use in an industrial environment and can withstand water splashes or light spray as well as dust. Clean the equipment using a soft cotton cloth and a mild soap solution. Laser apertures as well as sensor areas should only be cleaned using a soft, dry and dust-free cloth. Do not use paper towels to clean glass surfaces as they could scratch. Avoid contact with grease, oil or oil-based solutions when handling the equipment.

1.5 Maintenance

The mechanical components of your equipment are prone to natural wear and tear! If the instrument appears to have a technical defect, contact the Manufacturer. Do not try to repair or open the sensor casing. Attempted repairs through unauthorised personnel makes the guarantee null and void! Always store the instrument under dry conditions and use the case for transportation.

To ensure trouble-free processing, simply fill in the form you will find using the following link: http://www.statuspro.com/doc/Formulare/FORM_RepairCalibration_1032_E.pdf

**Advice**

To be able to identify the equipment when seeking advice always quote the serial number of the equipment. The Manufacturer does not accept any responsibility for damage incurred through incorrect maintenance carried out by non-authorised personnel.

1.6 Calibration and Repair



To guarantee measurement accuracy and reliable operation of your Status Pro Measurement System, it is of utmost importance that the recommended Service Intervals be adhered to. The System should be checked for serviceability, and re-calibrated by the Status Pro workshops every 12 months.

Within the scope of the service checks, the complete system will also be examined for possible wear or damage, as well as receiving any software updates. The date of the next service check for your equipment is stamped on the Status Pro calibration sticker.

To ensure trouble-free processing of the service and calibration checks, simply fill in the form you will find using the following link:

http://www.statuspro.com/doc/Formulare/FORM_RepairCalibration_1032_E.pdf

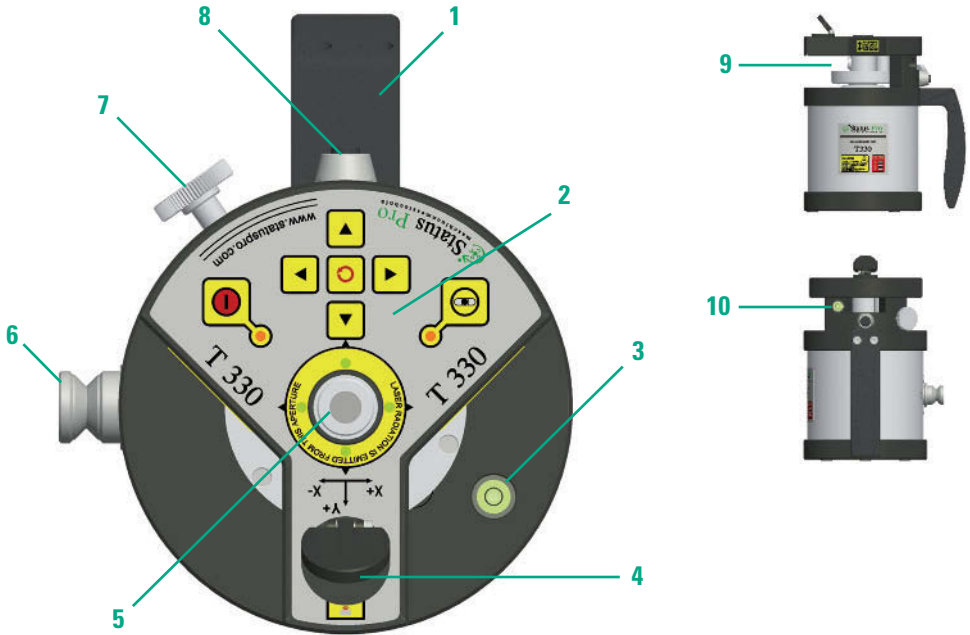
1.7 Liability Exclusion

The Status Pro GmbH does not accept responsibility for damage incurred through incorrect use or handling of the equipment. To ensure correct usage, a founded knowledge of the equipment is essential. It is of the utmost importance that you read and understand the User Guide!

No responsibility will be accepted for damage incurred through ignorance or disregarding of the operating instructions.

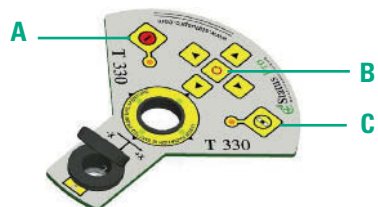
2. Getting started

2.1 The T330 Keypad



- | | |
|-------------------------------------|------------------------------------|
| 1. Carrying handle | 6. Mounting adapter |
| 2. Keypad | 7. Transport securing screw |
| 3. Horizontal spirit level (coarse) | 8. Data Interface and Power Socket |
| 4. Infra-red receiver | 9. Laser aperture (rotating beam) |
| 5. Laser aperture (static beam) | 10. Vertical spirit level (coarse) |

- A** Power button (On/Off)
B Rotation button and arrow buttons for laser control
C Self levelling button



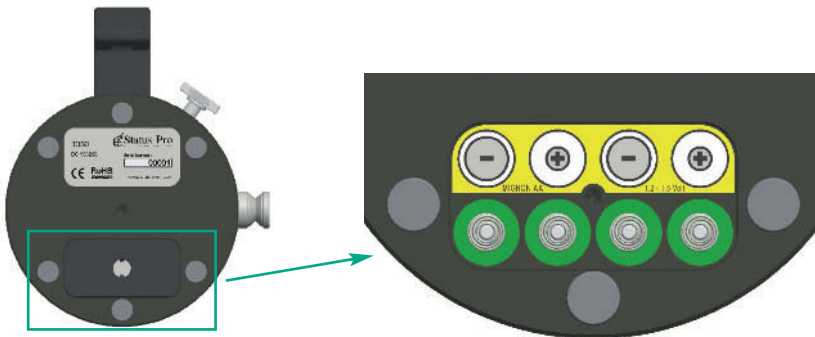
2.2 Power Supply

Battery-powered operation

The T330 can be powered using 8 Mignon batteries (1,5V, AA/LR6). A fresh set of batteries will give around 10 hours of measurement time. It is also possible to use rechargeable cells (Type AA). Rechargeable cells must, however, be charged with an external charger as charging through the T330 is not possible.

The battery compartment is accessible by removing the cover on the underside of the T330 laser. To remove the cover simply unscrew the central captive screw and remove the cover.

The battery compartment has four chambers each containing two batteries/cells.



The label shows for each chamber, the correct orientation of the batteries: where there is a + symbol the plus terminal of the battery must point outwards and where there is a – symbol, the minus terminal must point outwards.

Please observe the following:

- Insert batteries correctly (see label in battery compartment).
- Use only Alkaline Batteries or NiMh Rechargeable cells (Type AA / Mignon).
- Do not mix rechargeable cells with normal batteries.
- If storing the laser for longer periods of time, remove the batteries to eliminate the risk of corrosion.

When replacing the battery cover, ensure a straight and correct orientation of the cover.

Mains operation

The T330 can also be powered using a mains cable (BG 800026) supplied with the laser package.

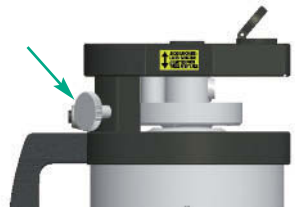
The threaded plug of the cable is screwed into the socket on the laser taking care to mount the plug correctly.

When the T330 is being powered using a mains supply the connection between batteries and laser is disconnected, avoiding discharging of the batteries (no charging!).



2.3 Starting the T330

To be able to use the T330 it is compulsory to release the transportation screw, if applied. To do this, unscrew the screw until the “end-stop” is reached (no force). When securing the laser for Transport screw the screw all the way back in until the opposite “end stop” is reached (no force). If the Laser is turned on before the transport screw has been loosened, the laser will emit a beep tone of a 5Hz frequency.



The control panel or keypad of the T330 laser houses the following controls:



Turn the T330 on by pressing the Power Button, turn off by pressing the button again.



The levelling button starts and stops the self-levelling function of the laser. When activated, the small LED next to the button will be lit.



The Rotation Button starts and stop rotation of the laser beam.



The Arrow Buttons situated around the Rotation Button enable controlling/moving of the laser plane/beam in the desired direction within the X and Y axes.



3. Measurement

The T330 emits effectively two laser beams: firstly, a static beam for use with the R5XX Sensor and secondly, a rotating laser beam for use with a R280 or an R310 Sensor.

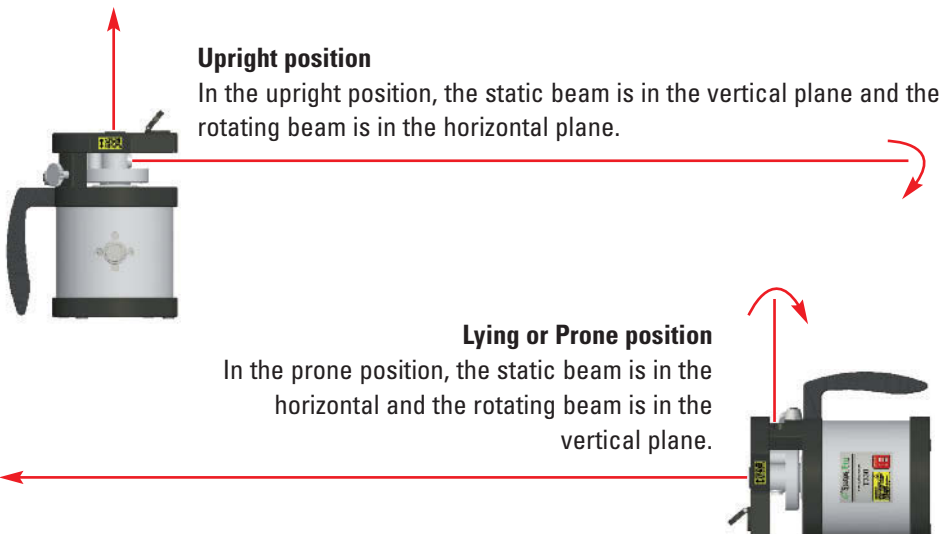
When measuring using the Laser in self-levelling mode, we can achieve an accuracy of 0,01mm per metre or better. The rotating as well as the static beam are both levelled when this function is activated.

The T330 Laser, the R310 Receiver and the RC310 Remote Control are able to communicate with each other over infra-red.

3.1 Setting up the T330

Position

The T330 Laser, depending on the task, can be positioned vertically (upright), horizontally (lying or prone), or at a freely chooseable angle.



The T330 can be used without additional equipment when being used in the upright position. When being used without attachments the laser beam hits the receiver at around 0,00 mm when an R310 or an R280 Receiver (with Magnet adapter) is being used.



When being used in the prone, or lying position, the T330 has to be mounted onto the Tilt/Swivel Adapter.

Tilt/Swivel Adapter (BG830205)



The Tilt/Swivel Adapter is the “base station” for the T330 Laser. The Laser is held firmly and be adjusted to almost any desired position or angle depending on the task.

The shift lever on the side is the locking mechanism for the mounting arm and when loosened, the arm can be rotated through 360°. There are detents every 90°.



The knurled screw at the end is for adjusting the table shift. This facilitates very fine adjustments of the laser position when being used in the prone position.



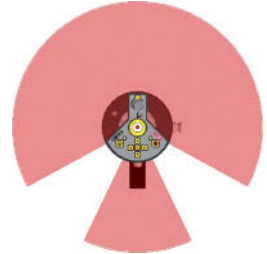
Using the adapter, the T330 can be mounted in the horizontal or vertical positions and be adjusted to facilitate use in almost every situation.



On the underside of the Tilt/Swivel Adapter there are three swivelling magnets allowing a secure, „wobble-free“ mounting on any metallic surface. The 5/8” inside thread on the underside also allows the mounting of a tripod adapter (FIX STIV-SZ1) for use with a Status pro tripod or indeed any standard tripod.

“Almost” all-round view

The laser plane of the T330 is slightly restricted in its all-round view due to the two mounting columns for the Keypad. It is important to take this into account when considering the laser positioning before measuring.

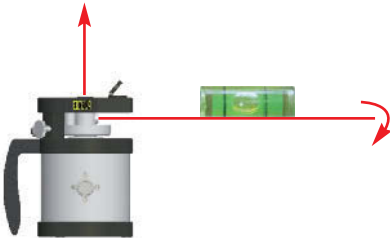


3.2 Setting up the T330

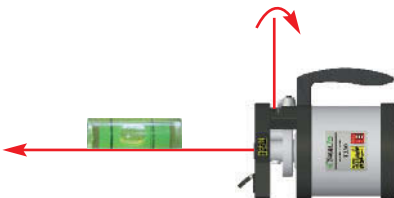
Levelling

The T330 has different internal electronic spirit levels enabling the laser beam or plane to be “aligned” or levelled parallel to the earth's gravitational “pull”.

Using this function, a reference plane (laser plane), against which the measurement object can be measured, is quickly and easily established.



In the upright position, the T330 is firstly adjusted roughly level using the designated coarse spirit level. When the self-levelling button is pressed, the rotating laser plane will be adjusted exactly to level and the static beam will be exactly “plumb-vertical”.



In the lying/prone position, the rotating beam will be exactly “plumb vertical” and the static beam will be levelled.

3.3 Remotely controlling the Laser using infra-red

The T330 can receive commands over infra-red. These signals can be sent using either the RC310 Remote Control (see Chapt. 6) or using the Receivers R280 or R310.

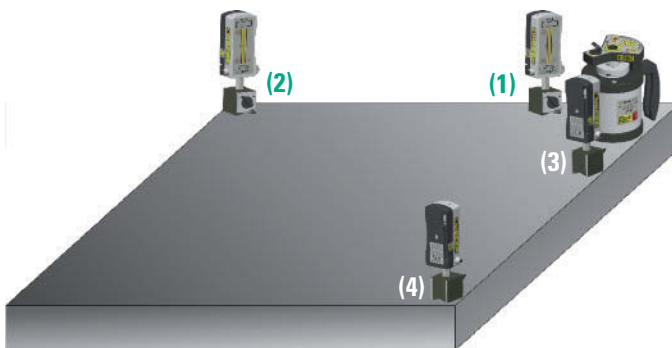
It is important to align the mirror on the T330 in the direction of the infra-red transmitter ensuring reception of the signal.



When an R280 or R310 sends a command to the Laser, movement in the X or Y axis depending on which has been selected, will be activated. The Laser moves within the axis until a value of 0,00 is reached. As long as infra-red is active the laser will be corrected to 0,00 should the value drift.

In the following example we can see how the laser plane is “aligned” parallel to the table using an R310 Receiver:

3.4 Parallely aligning the laser plane using infra-red



1. Position the T330 appropriately ensuring laser visibility at all four points.
2. Turn on the T330, activate Rotation and Self-levelling.
3. Place the R310 with its Magnet Adapter at Pos. (1) and the “Zero” the R310.

4. Now position the R310 at Position (2) and adjust the laser plane in the (Y) axis to 0,00 as follows: Go into the Menu until Pos. Y is visible, then select or confirm by pressing the 0 button, then leave the Menu by pressing the ON/OFF button. Direct the mirror on the Laser in the direction of the R310. Press the Infra Red button on the R310 then wait until the Laser has reached 0,00 before turn off the infra-red function again!
5. Move the R310 to Position (3) and “Zero” the R310 again remembering to remove the “old Zero” by pressing the 0,00 button for at least 2 seconds.
6. Now move the R310 to Position (4) and align the laser plane in the (X) axis to 0,00 as follows: Go into the Menu until Pos.X is visible, then select or confirm by pressing the 0 button, then leave the Menu by pressing the ON/OFF button. Direct the mirror on the Laser in the direction of the R310. Press the Infra Red button on the R310 then wait until the Laser has reached 0,00 before turning off the infra-red function again!

Note: Check all four points again to make sure there has been no shift during alignment, if necessary repeat steps 3 to 6.

3.5 On-site or Field Calibration

Calibration: *Sensors have to be calibrated before use as they are also sensitive measurement objects. They are adjusted or as we say, calibrated during the production procedure at Status Pro and checked again before being delivered. They are also checked and if necessary, re-calibrated during the prescribed service procedure.*

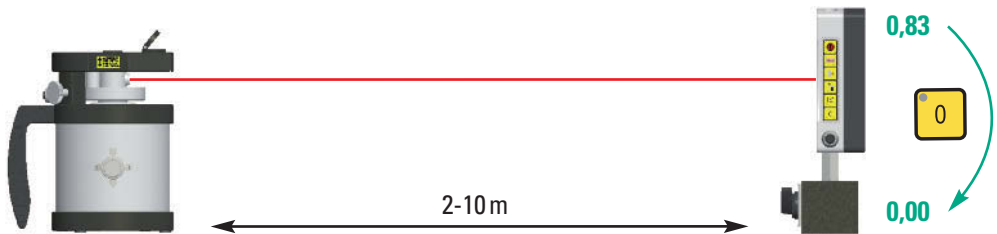
Other kinds of levelling instruments and other measurement equipment with self-levelling features are also subject to physical forces from the environment. After being transported, or after being knocked or dropped, the levelling characteristics of these instruments can be affected.

The levelling accuracy of the T330 can be checked and if necessary be calibrated on-site! If you are going to carry out levelling work with the T330 it makes sense to check the levelling accuracy if the Laser was previously freighted to the site. If the T330 has been kept on site or if being used in a central workshop then an occasional look at the accuracy every few weeks is recommended, depending on how often the Laser is used.

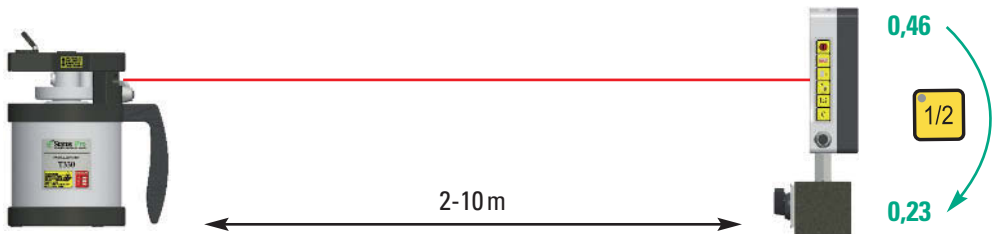
The following page explains the checking of the laser levelling accuracy as well as the “re-calibration” using a R310 receiver if necessary.

Checking the Calibration of the T330 Sweep Laser

1. Y-Axis, set up the T330 and R310 as illustrated and turn both on (distance ca. 5-10).
2. Activate the self-levelling on the Laser and wait until all four status LEDs show constant green.
3. Zero the value on the R310 by pressing the "0" button.



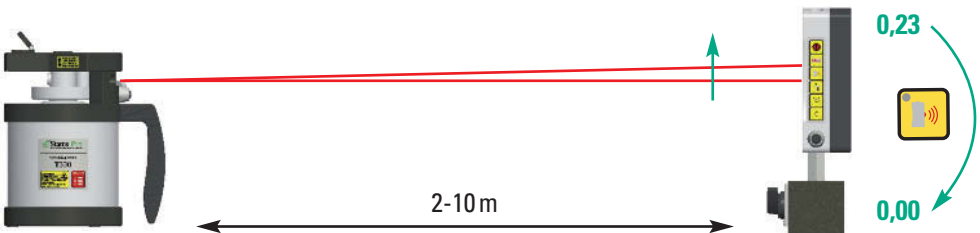
4. Rotate the T330 through 180°.
5. Turn on the self-levelling again if necessary, then wait again until all four status LEDs are showing constant green.
6. The value showed on the R310 is the "doubled" levelling error.
7. Press the 1/2 button on the R310 to obtain the correct levelling error.



Divide this value by the distance between Laser and Sensor to obtain the error in mm/m.

Calibrating the T330 Sweep Laser

8. Enter the Menu and activate the Y-axis **Pos 4**. Then exit the Menu.
9. Activate infra-red by pressing the appropriate button on the R310, the Laser will now be controlled towards 0,00.



10. When 0,00 has been reached, enter the Menu again and go to the **CAL 4** point. When the "0" button **0** is pressed, the R310 sends the calibration command to the T330 Laser. When the command has been successfully sent, the Laser will cease rotating and a beep tone will be heard. Additionally, the two LEDs from the freshly calibrated axis will be lit up red.
11. Repeat steps 1-10 for the second axis.(X / Y).



Note

This calibration procedure applies only to the self-levelling feature of the T330. All other calibration procedures are carried out before leaving our factory and when the prescribed service checks are carried out through Status Pro Personnel.

4. Signals and Special Features

4.1 Peeper



| | |
|----------------|---|
| Constant | <ul style="list-style-type: none"> • In levelling mode means the Laser has been knocked or disturbed • An axis which has been in "levelling mode" has received a command from an external source (R310, RC310) • Calibration has been carried out successfully |
| 5Hz-frequency | <ul style="list-style-type: none"> • Transport screw has not been released or has crept back in • End position in the laser has been reached caused usually when the laser has not been coarsely adjusted before carrying out the self-levelling process. • Calibration process has failed |
| 1Hz-frequency | <ul style="list-style-type: none"> • Rotational speed below 1Hz (blocked drive) • Either maximum or minimum rotational speed has been reached |
| Click tone | <ul style="list-style-type: none"> • Laser is being remotely controlled • Arrow button has been pressed • Buttons on the RC 310 are being pressed |
| Cyclic beeping | <ul style="list-style-type: none"> • Batteries are getting low |

4.2 Power LED



| | |
|-----------------|---|
| Permanently lit | <ul style="list-style-type: none"> • Laser is turned on, transport screw been released, batteries or power is OK, no mechanical or electrical problems |
| 5Hz-flash | <ul style="list-style-type: none"> • Error (Power problem, boot sector error, end position reached ...) • Transport screw has not been released or only partly released |
| 1Hz-flash | <ul style="list-style-type: none"> • Power supply below minimum threshold (low battery) |

4.3 Levelling LED



| | |
|-----------------|---|
| Permanently lit | <ul style="list-style-type: none"> • One or both axes are in levelling mode |
| 10Hz-flash | <ul style="list-style-type: none"> • Demo mode where the range is optimised for up to 5m (no warning sound when knocked or disturbed!) |
| 5Hz-flash | <ul style="list-style-type: none"> • Coarse adjustment of the T330 Laser not good enough • Self levelling feature not possible |
| 1Hz-flash | <ul style="list-style-type: none"> • Temperature drift too large (usually during warm-up) – WAIT! |

4.4 LED's around the Laser Aperture



Red (Y+) LED

Permanently lit

- Laser is being moved in the Y+ direction at the fastest speed
- Only present after keeping the button pressed through the initial and second speed stages
- When visible together with the green Y+ LED: The calibration command for the Y(Z)-axis has been accepted and stored

5Hz-flash

- Limiter for the Y-axis has been triggered (the end position for the travel range has been reached or cannot be exited)
- Calibration of the Y-axis could not be accepted due to excessive fluctuation of the measurement values
- Laser has just been turned on

Short pulses

- The Y+ button is pressed and the initial movement has been started



Red (Y-) LED

Permanently lit

- Laser is being moved in the Y- direction at the fastest speed
- Only present after keeping the button pressed through the initial and second speed stages
- When visible together with the green Y- LED: The calibration command for the Y(Z)-axis has been accepted and stored

5Hz-flash

- Limiter for the Y-axis has been triggered (the end position for the travel range has been reached or cannot be exited)
- Calibration of the Y-axis could not be accepted due to excessive fluctuation of the measurement values
- Laser has just been turned on

Short pulses

- The Y- button is pressed and the initial movement has been started



Red (X+) LED

Permanently lit

- Laser is being moved in the X+ direction at the fastest speed
- Only present after keeping the button pressed through the initial and second speed stages
- When visible together with the green X+ LED: The calibration command for the X-axis has been accepted and stored

5Hz-flash

- Limiter for the X-axis has been triggered (the end position for the travel range has been reached or cannot be exited)
- Calibration of the X-axis could not be accepted due to excessive fluctuation of the measurement values
- Laser has just been turned on

Short pulses

- The X+ button is pressed and the initial movement has been started



Red (X-) LED

Permanently lit

- Laser is being moved in the X direction at the fastest speed
- Only present after keeping the button pressed through the initial and second speed stages
- When visible together with the green X LED: The calibration command for the X(Z)-axis has been accepted and stored

5Hz-flash

- Limiter for the Y-axis has been triggered (the end position for the travel range has been reached or cannot be exited)
- Calibration of the Y-axis could not be accepted due to excessive fluctuation of the measurement values.
- Laser has just been turned on

Short pulses

- The X- button is pressed and the initial movement has been started



Green (Y+) LED

| | |
|-----------------|---|
| Permanently lit | <ul style="list-style-type: none"> • Y-axis has completed self levelling (less than 10 steps) • When lit in conjunction with the red (Y+)-LED: Calibration command for this axis has been accepted |
| 5Hz-flash | <ul style="list-style-type: none"> • Y-axis is less than 1000 steps but still more than 10 steps away from completion of the levelling process • Valid command/message has been received from either an R280/R310 |
| 1Hz-flash | <ul style="list-style-type: none"> • Y-axis is more than 1000 steps from completion of the levelling process |



Green (Y-) LED

| | |
|-----------------|---|
| Permanently lit | <ul style="list-style-type: none"> • Y-axis has completed self levelling (less than 10 steps) • When lit in conjunction with the red (Y-)-LED: Calibration command for this axis has been accepted |
| 5Hz-flash | <ul style="list-style-type: none"> • Y-axis is less than 1000 steps but still more than 10 steps away from completion of the levelling process • Valid command/message has been received from either an R280/R310 |
| 1Hz-flash | <ul style="list-style-type: none"> • Y-axis is more than 1000 steps from completion of the levelling process |



Green (X+) LED

| | |
|-----------------|--|
| Permanently lit | <ul style="list-style-type: none"> • X-axis has completed self levelling (less than 10 steps) • When lit in conjunction with the red (X+) LED: Calibration command for this axis has been accepted |
| 5Hz-flash | <ul style="list-style-type: none"> • X-axis is less than 1000steps but still more than 10 steps away from completion of the levelling process • Valid command/message has been received from either an R280/R310 |
| 1Hz-flash | <ul style="list-style-type: none"> • X-axis is more than 1000 steps from completion of the levelling process |



Green (X-) LED

| | |
|-----------------|---|
| Permanently lit | <ul style="list-style-type: none"> • X-axis has completed self levelling (less than 10 steps) • When lit in conjunction with the red (X-) LED: Calibration command for this axis has been accepted |
| 5Hz-flash | <ul style="list-style-type: none"> • X-axis is less than 1000 steps but still more than 10 steps away from completion of the levelling process • Valid command/message has been received from either an R280/R310 |
| 1Hz-flash | <ul style="list-style-type: none"> • X-axis is more than 1000 steps from completion of the levelling process |

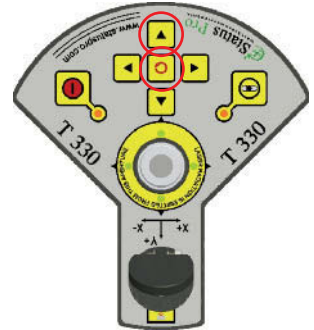
4.5

Button Combination Features with the T330 Laser

Reducing the rotational speed of the laser

Reducing the rotational speed can be useful when measuring at greater distances as the laser spends more time on the sensor area increasing signal strength. Minimal rotation speed: 3 revolutions per second (standard: 6).

- Initial state: Laser is turned on – no rotation
- Press and hold the rotation button pressed, Laser is now rotating
- Press the (Y-) arrow button and keep it pressed until the desired speed is reached
- When the minimum speed has been reached, the laser will emit a peep-tone and speed adjustment will cease

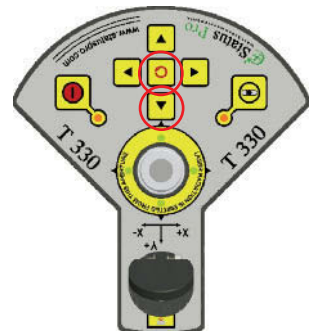


Increasing the rotational speed of the Laser

Increasing the rotation speed of the T330 when in close proximity to the R310/R280 speeds up the reaction time of the T330.

Maximal rotation speed: 10 revolutions per second (standard: 6).

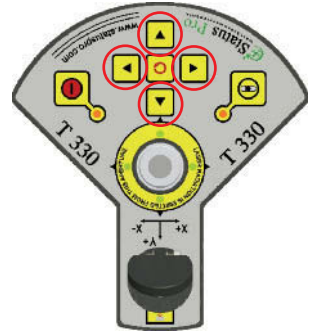
- Initial state: Laser is turned on – no rotation
- Press and hold the rotation button pressed, Laser is now rotating
- Press the (Y-) arrow button and keep it pressed until the desired speed is reached
- When the maximum speed has been reached, the laser will emit a peep-tone and speed adjustment will cease



Demo mode, activating and deactivating the temporary mode

When the demo mode is activated, the IR signal of either an R310 or an R280, is optimized to a distance of 5 metres. This speeds up the remote controlling of the laser at short distances. When in the demo mode, the „shock sensor“ is deactivated (no audible signal from the T330 when disturbed).

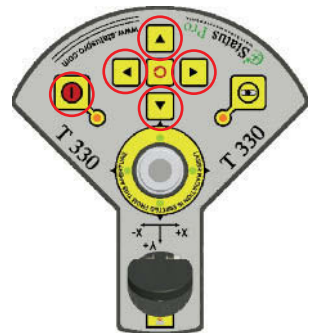
- To activate the demo mode, press all four arrow buttons simultaneously, then release
- To deactivate the demo mode, simply turn off the T330 then turn on again



Demo mode, activating and deactivating the permanent mode

If you are permanently working in close vicinity of the T330 Laser it could be useful to activate the permanent demo mode (short ranges). To activate:

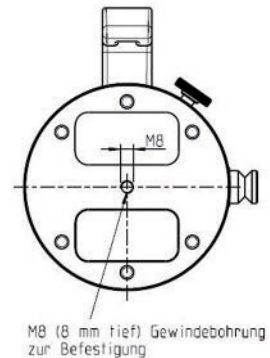
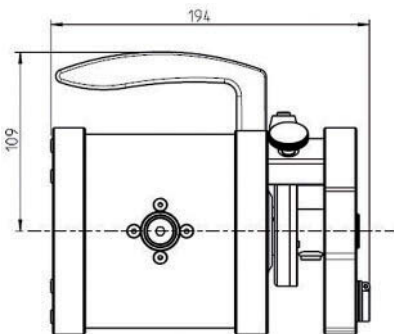
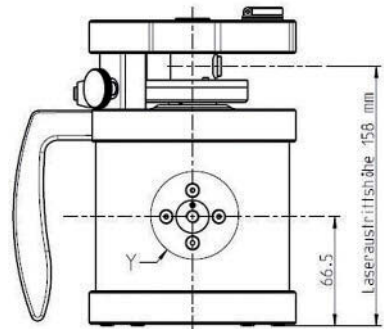
- Press and hold all four arrow buttons
- Now press the On/Off button as well
- The T330 will switch itself off
- Turn on the T330 Laser again
- During turning on, the four position LED´s will flash. Additionally, during turning on, the levelling LED will also be flashing at approx. 5 Hz signalling permanent demo mode
- The permanent demo mode will remain active even when the T330 Laser is turned off and on again
- To deactivate the permanent demo mode, carry out steps 1-4 again. When the standard mode is active, the position and levelling LED do not flash



5. Technical Details

| | |
|------------------------------|---|
| Laser classification: | 2 (EN 60825-1) |
| Interface: | RS 485 & IR |
| Measurement range: | 0 to 50 Metres |
| Prism error: | < 0,02 mRad |
| Step error: | ± 0,05 mm |
| Conical error: | ± 0,01 mRad |
| Levelling accuracy: | ± 0,02 mRad |
| Operating time: | > 10 Hours with one set of batteries / Rechargeable cells, constant operation over power cable |

| | |
|---|--|
| Static Temp. Comp: | 0,001 mRad/K |
| Dynamic Temp. Comp: | 0,005 mRad/K/min |
| Temperature range for operation: | 0°C bis +50°C |
| Max. humidity for operation: | 20 % to 80 % |
| Power needs: | 8 Batteries 1,5 V, Type Mignon (AA/LR6) |
| Dimensions: | 125 x 170 x 185 mm |
| Weight: | 2400 g |



6. RC310 - Remote Control

The RC310 is a Remote Control device with several functions. Its primary use is to enable operation of the T330 without physically touching the laser unit, all functions of the T330 are possible using the RC310 except for turning on and off. The RC310 can also be used for showing the measurement value of a R310 Sensor if the sensor is at a distance from the Laser. The measurement value from the R310 is transmitted to the RC310 over infra-red.



6.1 Function keys on the RC310



Power button on / off and
Self-levelling on / off

Turn on the RC310 by pressing the power button.

When the RC310 is in operation, the self-levelling function of the T330 Laser can be turned on or off by pressing the power button. If the power button is pressed and held for longer than 1,5 seconds, the RC310 will be switched off.

(Note: If the RC310 is pointing in the direction of the IR opening on the T330 Laser, the Levelling function could be turned on or off unintentionally).



Laser rotation on / off

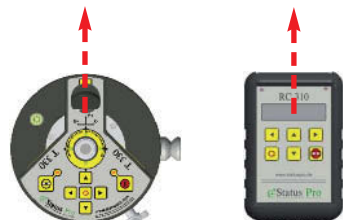
By pressing this button, the T330 Laser rotation can be activated or deactivated.



Arrow buttons for aligning the laser plane

The position of the laser beam/plane can be adjusted in the X- and Y-Axes ($\blacktriangle(+)$ / $\blacktriangledown(-)$ / $\blacktriangleleft(+)$ / $\blacktriangleright(-)$) without physically touching the Laser.

Tip: The following orientation of both components will give movement in the "same" direction. When remotely controlling from a distance, the direction of movement could be the opposite!



6.2 Display of the RC310

Switching on

The RC310 is turned on by pressing the lower right hand button. The following information will be displayed for a duration of ca. 1 second: company name, instrument name and the software version.



Afterwards, an image of all of the buttons is displayed as well as the software version, this is the standard screen for operation.



Switching off

To turn the RC310 off, simply press the power button for at least 1,5 seconds. A “reminder tone” signals the operator to release the button if held pressed!



6.3 Configuring the RC310

To enter the configuration menu press and hold the ▼ button, then press the ▲ button as well.

Change settings: ▼ and ▲ buttons

Change menu level: ◀ and ▶ buttons

When moving from one menu level to another, the previous settings will be saved to memory. After reaching the last level in the menu the RC310 returns to normal operational mode (Menu Exit).

Configuration menu

Language: German, English und French

Language: Engl.
← ↑ ↓ →

Units: mm or inch

Unit: mm
← ↑ ↓ →

Display contrast: 0 - 63

Contrast: 40
← ↑ ↓ →

Auto turn-off time: 2 – 240 min / Off

Turn off: 10 min
← ↑ ↓ →

Instrument information: software version, internal check sum, battery level and temperature

V 1.04 CS = 0 x C A A B
8.9 V 25.2 °C

Reset function

The reset function returns the RC310 to its factory settings. (Language: German; Units: metric; Contrast: 40; Auto-off time: 10min).

To return the RC310 to its factory settings, press the ◀▶ buttons in the order shown and keep pressed.

6.4 Communication between the RC310 and the R310 Sensor

There are three kinds of signal that can be sent from the R310 to the RC310:

Laser position without controlling function

In this mode, the position value or measurement value on the R310 is transmitted to the RC310 providing the R310 is set to RC310 in the menu and the IR button on the R310 has been activated.

← ↑ ↓ → ↻ ⊖ RC310
1.23 mm

Laser position with remote controlling of the T330 Laser

When the remote controlling of a particular axis has been selected from the R310 menu, the position of the laser beam will be moved accordingly. Additionally, the measurement value will be transmitted to the RC310 along with the axis being presently controlled. The values shown on the R310 can differ slightly from the value being displayed by the RC310 as the values for the laser positioning are evaluated slightly differently.

Again, to achieve laser positioning of the T330 Laser and obtain values on the RC310 the infra-red on the R310 must be activated.



The RC310 receives and displays a new value every 500ms, signalled by a "click".

Calibration command from the RC310

For Information only, when the R310 has sent a command to the T330 for re-calibration, the axis which has been calibrated will be shown in the RC310 display.



Please observe the following:

- To ensure trouble-free operation, ensure that nothing obstructs the line of sight between RC310 and its receiving instrument
- "Point" the RC310 in the direction of its receiving instrument
- If the remote distance range is drastically reduced, replace the battery as a first action
To do this, remove the RC310 from its protective rubber casing, then open the battery cover on the reverse side of the housing. The battery is a 9-Volt block battery
- The maximum operating range of the RC310 is 50 metres
- The R310 can only send a signal when a laser beam is being measured
- When an IR signal is interrupted, the last received value will be displayed for approx. 2 seconds

7. Accessories

RC310 remote control (BG 830930)

The RC310 Unit facilitates remote controlling of the T310 Laser as well as enabling viewing of measurement values when the R310 is at a distance.



Power Supply Cable (BG 800026)

Mains cable for use with the T310/T330 und R310. The cable assembly is supplied with a wide range of adapters for use worldwide and is CE certified.



Tilt and Swivel adapter (BG 830205)

Using the swivel and tilt adapter you can align the laser level, irrespective of the surface below. The Adapter also allows for a parallel movement which is very useful when aligning the laser parallel to a reference object. The adapter is accommodated with a 5/8" thread, and is also fitted with a three-point magnet arrangement underneath.





T330 Flange Adapter (BG 830580)

This adapter is of great practical help for measuring the flanges. It can be used to install the T330 in vertical position at the flange.



R310 Laser Receiver (BG 830134)

The R310 measures the position of the rotating laser beam. Its CCD Sensor has total measurement range of 80mm.

The beam forms an entire reference plane.

The R310 is wireless and can measure up to a distance of 80m from the Laser.



Battery Pack with bluetooth (BG 830135)

Li-Ion battery pack for the R310 Sensor, also containing a bluetooth module for communication with a PC.

The bluetooth module enables measuring in a totally „cable-free“ environment, ideal for all tasks.

Also suitable as a retro-fit with used R310 Sensors.



Battery Pack without bluetooth (BG 830136)

Li-Ion battery pack for the R310 Sensor (BT 800071).

Also suitable as a retro-fit with used R310 Sensors.

R280 Laser Receiver (BG 831500)

The R280 measures the position of the rotating laser beam with respect to a surface in much the same way as an R310 Sensor. The measurement range is up to 80metres and it has a built-in bluetooth pack for PC communication.



R545 Laser Receiver (BG 830450)

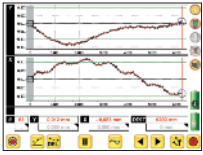
The R545 is a rugged but precise 2D Laser position detector. It was developed originally for machine tool alignment applications. Because of the wireless interface and its versatility it used today in a multitude of applications. Together with the ProLineV2 Software application we measure XY and Z simultaneously. If we use the T330 as a laser source we have a reference which automatically levels itself.

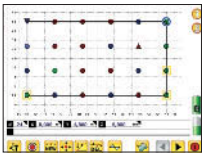


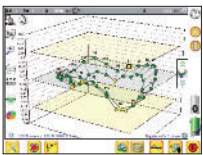
Display Unit DU 320 (IT 200410)

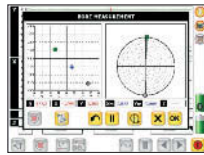
Display unit / ultramobile PC based. For industrial use; with protectors, internal and external battery and bluetooth.

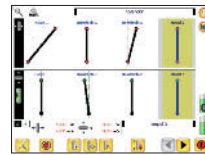



ProLine^{v3}


ProLevel^{v2}


ProFlange^{v3}


ProOrbit^{v3}


ProRoll^{v2}

Software of Status Pro

- ProLine** Professional Software for measuring Straightness (Dual-Axis).
- ProLevel** Professional Software for measuring Flat Surfaces.
- ProFlange** Professional Software for measuring Flanges.
- ProOrbit** Professional Software for measuring the concentricity of Bores or Bearing Ways.
- ProRoll** Professional Software for measuring Roll-Parallelism.

Tripods

Tripod 01-P (FIX STATIV-01-P)

Weight 5,5kg (incl. Adapter), Adj. Height 545mm – 935mm,
Laser (Measurement) height 815mm – 1205mm

Tripod 1.5-P (FIX STATIV-1.5-P)

Weight 12kg (incl. Adapter), Adj. Height 760mm – 1700mm,
Laser (Measurement) height 1030mm – 1970mm

Tripod 02-P (FIX STATIV-02-P)

Weight 12kg (incl. Adapter), Adj. Height 870mm – 1900mm,
Laser (Measurement) height 1140mm – 2170mm

Tripod 03-P (FIX STATIV-03-P)

Weight 13kg (incl. Adapter), Adj. Height 1160mm – 2520mm,
Laser (Measurement) height 1430mm – 2790mm

Tripod 04-P (FIX STATIV-04-P)

Weight 19kg (incl. Adapter), Adj. Height 1880mm – 3910mm,
Laser (Measurement) height 2150mm – 4180mm

8. Products and Services

Geometrical measurement techniques and alignment have been an issue since the pyramids.

Today the measurement and alignment of machinery components is an integral part of the assembly and quality control process. Be it linear guides, presses, flange connections, drive shafts or cylinder rolls, the precision of the alignment has a significant effect on the functionality of the component. The alignment of these machinery components will often affect the quality of the manufactured product and also the life-time of the machine components themselves.

The use of a laser beam reference together with tradition industrial measurement techniques has made it possible to build tools which simplify these alignment procedures.

Status Pro develops and manufactures laser alignment equipment and we are committed to this process. Most of our customers are machine builders, assembly and quality control people. Typically our customers require a complete solution package including on-site training and support. When a customised solution is required, modifications are often necessary, be it in software, mechanical adaptations or the sensor housing itself in order to meet customer requirements. We are interested in long-term customer relationships and therefore this is also part of our service.



We and our partner companies all over the world also provide alignment and industrial surveying services.

We invite you to visit our web site www.statuspro.com.
For more information just call us at +49 (0) 2327 - 9881 - 0.



Status Pro Maschinenmesstechnik GmbH
Mausegatt 19
D-44866 Bochum
Phone: + 49 (0) 2327 - 9881 - 0
Fax: + 49 (0) 2327 - 9881 - 81
www.statuspro.com
info@statuspro.com

Distributor

