# Parallel Roll Alignment Software

## User Guide





#### User Guide – English

## Software ProRoll'v2

#### September 2014

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

Please note: User guides 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 guides: www.statuspro.com



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## 1. Measurement setup

Roll parallelism is one of the greatest disciplines within industrial surveying techniques. We combine 2 different sensor types and the rotating laser to optimize this procedure.

The basic idea is that we use the rotating beam to buck-in to the machine line. We use the IR Laser control in conjunction with the R310 receivers to make this quick. Then we use the standing beam which is always at right angles to the Rotating plane to pick up each roll position.

Choosing a reference.

- 1. Use an external reference line
- 2. Use one of the rolls
- 3. Make a new reference

#### Setup:

#### **Option 1**



#### Using an external reference line:

Pick up the line with the centering pin of the R310 floor adapter BG 830119. Use the sensor further away from the laser to buck-in the beam. Use the offset screw on the laser mount to buck-in the near side. That's it.

With a little practice you can buck-in in 2 minutes.

Now turn off the rotating beam and use the standing beam to measure two points on the Roll. Repeat this procedure on each roll.



#### **Option 2**

#### Using a roll as reference:

Buck-in the standing beam of the T330 laser with the remote control so that you measure nearly 0.0 at both ends.

Start rotation and place the R310 receivers left and right of the T330. Zero the R310. They are now your reference.

#### **Option 3**

You can redefine the reference with the ProRoll software anytime and as often as you wish. Thus, you can chose your reference freely.



## 2. The software - first steps



You will notice that in the upper right area, the Bluetooth symbol and the symbols for the receiver indicate an active connection.



To measure press 🧕 .



This is the measurement screen. Enter the roll length and the measurement length (if they differ). Touch the sensor symbol where you want to measure first.



Position your sensor. The sensor has a inclinometer in it so it "knows" the angle. The current angle and measurement value is displayed top left.

Press "Measure".



The sensor symbol will jump to the other end of the roll. Position your sensor there. The red bar meter will ensure that you are at the same angle as the first measurement.

When you are positioned correctly press "Measure".





#### Tip:

This bar graph tip means that you do not have to measure at exactly 3 or 9 o'clock. Sometimes that is not possible. You can go as far as 45 degrees away from the ideal position.

This can be a big help.



When you are finished, the roll will get a green OK symbol 2. The results are then visible in red.



#### Measuring the vertical plane

This can be done either with a water level or with the T330 in a standing position. The result is entered as read in mm/m or mils/inch. Just touch the field to open the dialog box.



This field is used to avoid confusion regarding + and -. Normally we use the convention that  $\ge$  means the ND side is too low and  $\le$  means the ND side is too high.

#### **Manual input**

During first installation or major overhaul we often require a quick and rough alignment. It is often helpful to do this with the laser beam and a tape measure. If we can mount from a crain with an accuracy of +/- 1 mm in this way we will save a lot of time doing the fine adjustment with the sensor later.



Choose the ruler button 🔀 rather than the sensor button.

Then just as before, select your measuring point just by touching the appropriate ruler.



Just as before, you will be prompted to the next postion. Touch the remaining ruler and enter the measurement.





After you have measured a few rolls, you will notice that each one can be seen in the overview screen.

This is very helpful. Here we can zoom in and out , slide back and forward → and choose a new reference . Select a Roll by touching it; then select a reference. You will notice that this roll is zeroed and all other rolls shift accordingly.

Nr	Roll	₩		-	1	4	-
		mm	mm	mm/m	mm	mm/m	mm
1	HASPEL 1	1000	1500	0,014	0,021	0,200	0,300
2	UMLENKROLLE 1	1000	1500	-1,000	-1,500	0,200	0,300
3	UMLENKROLLE 2	1000	1500	-0,002	-0,003	-0,200	-0,300
4	HASPEL 2	1000	1500	0,000	0,000	0,000	0,000
5	ANLAGENLINIE	1000	1500	0,000	0,000	0,000	0,000
(Q)							

Go to the next page with  $\blacktriangleright$  to see a table of information on each roll. You can export this to Excel using the 🔯 button.

## 3. Tips and Tricks

The above method is not mysterious. Having an understanding of the basics, we can now combine this technique with a few traditional tips and tricks which can be very useful in real world applications.









#### Setting floor reference points

Buck-in your laser in to the reference roll. Place the R310 in the rotating beam and shift until it reads 0.0, mark the point with the Floor adapter pin. Use the BG 989050 to bore the hole. Place the floor point with the rawl plug.

Now shift the R310 again over the floor point to 0.0. Now mark the brass floor point with the Floor adapter pin. Perfect.



Part No. BG 830119

#### **Shifting Center Lines**

Often the center line is in the middle of the machine and therefore difficult to reach. It can be useful to shift it out several feet to a more convenient place. The floor adapter has a slot to hold a tape measure. Thus you can conveniently shift the line out at the extremities of the machine. Make sure the reference is long with respect to the roll length.

The Reference Line is really a plane.

If you use the Autolevel function on the T330, the rotating beam makes a plane out of the reference line. This is often useful for aligning roll stacks or guides along the product path.





#### Laser position:

You do not have to put the laser between the two reference receivers. Remember, two points define a line. You can of course use this technique to extend your reference points in either direction. The resolution of the R310 at 0.02 mm is good enough to keep the errors under control.

#### **Error Estimation:**

Imagine our machine is 30 meters long and our rolls are 2 meters long. We place our reference points beyond the machine extremities 40m apart. An error of 0.1 m at a reference point then is an angular error of 0.1 mm/40 m = 0.0024 mm/m. This causes a parallel error of 0.005 mm on our Roll.



Using the reference plane of the T330 and a sensor arm, fix the R310 to an arm. Attach the arm to the roll stub. Now rotate the roll. This is a very easy way to measure the vertical and horizontal angular deviation with respect to the reference plane. This method is used often for hidden rolls or wheels.

## 4. Register new sensors license key

When you order a measuring package with a display unit from Status Pro, all components are ready to use when you receive them. If you wish to use your own computer or add additional sensors later, they have to be registered in the software in order to enable communication.

	Status Pro
Pro Roll	27.01.2009
Anbei erhalt Schreiben so	n Sie den Lizenzschlüssel für Ihr Gerät. Bitte bewaren Sie dieses gfältig auf.
Serial	60918
License Key	AE5D-6FBE-EF82-FF79

With your sensors, you receive a delivery note that includes a license key.

When you start  $\mathsf{ProRoll}^{(\mathsf{R})}v2$ , the new sensor is found and the software prompts you to enter the license key.



Enter and confirm the license key that you received for the sensor. The unit is now ready for operation.



## 5. Description of program symbols

0	Record	measuring	point
---	--------	-----------	-------

- 🔀 Open / close settings
- Set pause for current measured value display
- 🥪 Save a comment to the measuring
- 📋 Create new measuring data file
- 🗾 Open measuring date file
- 🗔 Save results of measurement
- Previous / next page
- 🔍 Search for sensors
- 💿 Delete measurement results
- 🔟 Raw data
- 🔟 Info
- [ Export results for reports
- 🕺 Save measurement
- 폐 폐 Choose unit

🕠 Set selected roll as Reference
🕟 Delete roll
🕟 Set new roll
Position roll
Define averaging time of the display
Define averaging time of the measuring pick-up
😁 Define tolerance range
🛞 🛞 Bluetooth active / inactive
🏽 🐨 Sensors active / inactive
َ No connection
<ul> <li>Charge condition of receiver /</li> <li>DU320</li> </ul>
Enter sensor connection code (required only once for new sensors)
End program

## 5. System components

#### DU320 - Rugged UMPC with Touchscreen (IT 200410)

Rugged UMPC for industrial on-site. The UMPC offers protectors, shockproof design, holder for hand/arm.

Operating system	Windows Windows
Processor	AMD Geode LX800
Memory	512 MB/1 GB RAM
Mass storage	512 MB/8 GB Flash or
	30 GB hard disk
Display	10.4" TFT, 800 x 600 px, HiBrite
Touch Screen	Control with pen or finger
Interfaces	USB 2.0, CardBus PCMCIA Type II, CF-Card Slot,
	Bluetooth integrated, WLAN integrated, VGA
Security	Fingerprint reader, Intel WLAN Security
Rechargeable battery	Li-Ion 14 Wh internal, external extra battery 28 Wh replaceable or 74 Wh battery pack in carry bag
Housing	Magnesium/aluminum with rubber guard
Operating environment	Temperature 0-40 °C, humidity 0-90% n.k.
Dimensions & weight	approx. 210 x 261 x 18 mm, 930 g incl. standard rechargeable battery
Special features	Front is splash & water proof, shock proof from as high as 1.2 m (with rubber guard), 5 configurable keys, up to 4 hours of operation; Optional: multi-language, daylight display

#### Accessories for DU320 UMPC

Abbildung	Art-Nr.	Bezeichnung
	IT 200202	<b>Replacement control pen</b> Quantity of 3 / package
X	IT 200205	<b>Rubber guard handle</b> For holding the UMPC with one hand; is fastened on back on rubber guard
Cr	IT 200206	<b>Carrying strap for rubber guard handle</b> Fastened on back on rubber guard
	IT 200207	<b>External extra battery Li-Ion 28W</b> Can be replaced during operation
	IT 200208	1-compartment charging station for external battery
N	IT 200209	<b>Car DC-DC converter 12V / 24V</b> For connecting to docking station / car mounts or directly to the unit
<b>s</b> x <b>e</b>	IT 200211	<b>External expansion battery pack</b> Li-ion 73W, charge level display

#### **T330 – Self Leveling Laser** (BG 830203)



The T330 leveling laser makes even difficult measuring tasks easy! A laser transmitter transmits the signal and a detector measures the beam position. Done!



#### Control of the T330

The control keys control various functions. In addition, LEDs function as displays.



- 1. IR-receiver with folding mirror
- 2. Leveling status -LED for Y-axis (or Z-axis in case of laying arrangement) Green 1x: Leveling < 0.04 mm/m; 2x: Leveling < 0.025 mm/m; Red LED: Actuator motor working



3. Leveling status LED for X-axis Green 1x: Leveling < 0.04 mm/m; 2x: Leveling < 0.025 mm/m; Red LED: Actuator motor working



Power status LED on / off



- level ▲ (+) / ▼ (-) As well as  $\triangleleft$  (+) /  $\triangleright$  (-)
- Leveling status LED on/off

10. Level for rough leveling of the appliance

#### R310 - Laser Receiver (BG 830134)

The R310 measures the position of the rotating laser beam as a dial gauge from the workpiece for reference. The beam forms an entire reference plane and not just a line like a wire. The R310 is wireless and has a range of up to 80 meters.



Sensor	
Resolution	
Accuracy	
Range	
Interface	
Power supply	
Temperature resolution	

80 mm Diode array 0.01 mm +/- 0.02 + 1 % linearity typical: 50 m Rs232 / Bluetooth (optional) Batterie- oder Akkubetrieb 6x AA 0,1 °C

#### R545 - Laser Receiver with PSD Technique (BG 830450)



## 6. Declaration of conformity

In accordance with the EMC Directive 2004/108/EC, the Low Voltage Directive 73/23/EEC, including **amendments** by the CE-marking Directive 93/68/EEC & EC directives RoHS, 2011/65/EU.

Type of equipment	Alignment System
Brand name or trade mark	Status Pro Maschinenmesstechnik GmbH
Type designation(s) / Model no(s)	T330 – BG 830203, /1, /2, /3 R545 – BG 830450 R310 – BG 830100
Manufacturer's name, address, telephone & fax no	Status Pro Maschinenmesstechnik GmbH Mausegatt 19 D-44866 Bochum Germany Tel.: +49 (0) 2327 / 9881 – 0 Fax: +49 (0) 2327 / 9881 – 81

The following standards and/or technical specifications, which comply with good engineering practice in safety matters in force within the EEA, have been applied:

#### Standard / Test report / Technical construction file / Normative document

Emission:	EN 61000-6-3:2007.
Immunity:	EN 6100-6-2:2005, EN 61000-4-2, -3.
ISO9001:2008	Ref. No / Issued by:
	DNV Certification No. 2009-SKM-AQ-2704 / 2009-SKM-AE-1419

The laser is classified in accordance with the International Standard IES-60825-1:2007, USA FDA Standard 2I CFR, Ch I, Part 1040.10 and 1040.11 except for deviations pursuant to laser notice No. 50, dated June 24, 2007.

The wireless device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

#### **Additional information**

The products have been CE-marked in 2004.

As manufacturer, we declare under our sole responsibility that the equipment follows the provisions of the Directives stated above.

Place and date of issue Bochum, 2014-04-01 Signature of authorized person

David Foley, Managing Director







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