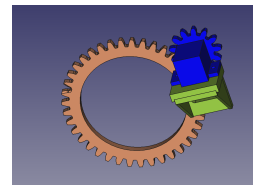


SchneiderRoth-Jones Counter

Jones-Counter for road course measurement in athletics



1. Manual

According to the International Competition Rules (IWR) of World Athletics (WA) in conjunction with the international running organization AIMS, only the calibrated bicycle measurement method with a "Jones-Counter" measuring device mounted on the bicycle is permitted for the distance measurement of competitions far from the stadium.

The procedures of course measurement is described in publications. The service website of German Community Road Course Measurers (GCRCM) provides an informative collection of data on this:

<https://laufstreckenvermessung.de>

Since the development of the "Jones-Counter" by *Alan Jones/USA* in 1971, the measuring device has been mounted on the bicycle on the front wheel axle on the left side with a 5- or 6-digit display in the various stages of development. The "Jones-Counter", which is sold in the USA, is now only produced on the right side with a 6-digit display. Since 2017, the "Cook-Jones Counter" with a 5-digit display has been manufactured in Great Britain and can be mounted on both sides.

The fact that new generation bicycles are usually equipped with disc brakes and/or a bicycle axle dynamo prompted the international accredited road course measurers *Karl Josef Roth* (WA/AIMS Grade A) and *Hans- Peter Schneider* (WA/AIMS Grade B) to develop a new version of the "Jones-Counter" in 2023:

<https://laufstreckenvermessung.de/jones-counter/>

The "SchneiderRoth-Jones Counter" (SR-JC) is mounted on the right side of the front wheel as a spur gear unit. The functions of dynamo with electrical connection as well as the disc brake mounted on the left side are not affected. Mounting on all common bicycle developments is guaranteed.

The gear ratio is approximately the same as the previous models; the current models from the USA and UK have a route resolution of approx. 9 centimetres/count, depending on the size of the bike (26-29"). In the case of a 28" bicycle, the measurement constant for the SR-JC – based on 1,000 m – is calculated as approx. 13,400-13,500 counts; the distance resolution per count is approx. 7.5 centimetres.

The 5/7-digit counter is designed for a rotational power of max. approx. 500 rpm. Depending on the size of the bike, this corresponds to a maximum speed of approx. 20 km/h; Incidentally, the measurement is intended to reflect the conditions of the runner and in this respect the usual speed for the measurement is approx. max. 20 km/h.

The "Jones-Counter" is maintenance-free if installed in accordance with the regulations. The plastics used are materials that have been tried and tested over many years in mechanical engineering. For long-term use, it is important to pay attention to the tightness of the mounting screws of the kit and the stability of the cable ties for the large gear. The cable ties should be checked regularly, as the plastic can become brittle due to temperature differences and exposure to sunlight. No lubricants are required. Before, during and after the course measurement, the parts of the measuring device should be cleaned of coarse dirt with clean water.

The counter series is manufactured for the common 9-10mm thru-axles/hollow axles with quick release; larger thru-axles such as road bike/gravel (12mm) or mountain bike (max. 15mm) require a slight adjustment of the kit. This must be indicated when ordering.

The kit parts can be reordered individually.

2. Assembly instruction

2.1 Components

The SchneiderRoth-Jones Counter (SR-JC) is supplied with the following components:

- (1) 1x large gear (39 teeth) with mounting holes
- (2) 1x kit counter with retaining plates
 - retaining plate with 10mm bore for the axle mounting (Standard – other dimensions up to 15mm on request)
 - mounting plates (flat + triangular) with M4 machine screws + nuts (self-locking)
 - 5-digit counter with small gear wheel (13 teeth), pre-mounted on the flat mounting plate.
- (3) 4x cable ties 2.5 mm
- (4) Operating and assembly instructions for download (German/English)

An assembly manual with pictures / video can be found on the Internet.

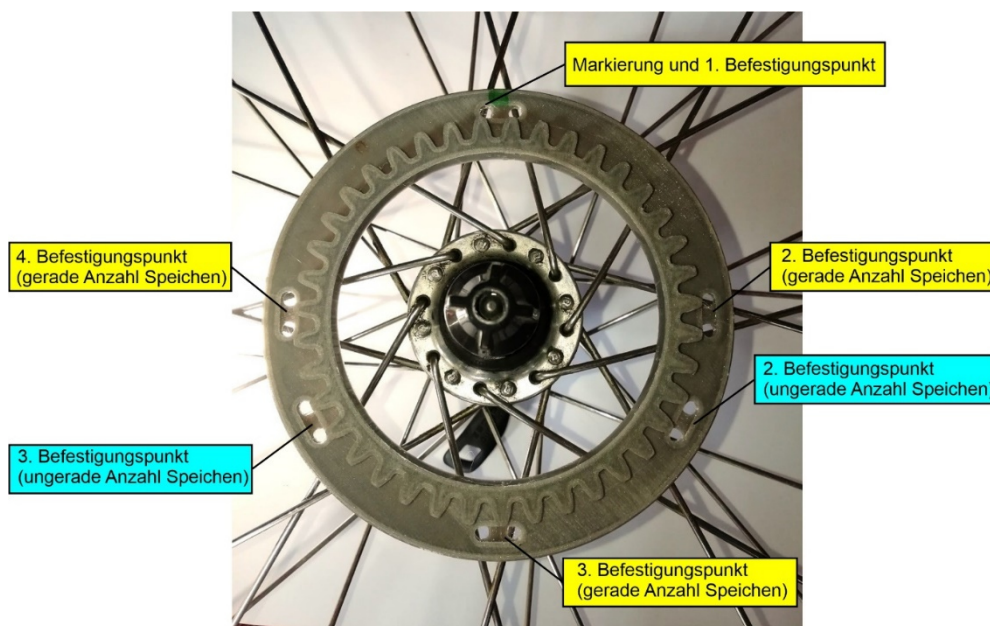
2.2 Mounting on the front wheel

It can be mounted on all common spoke variants on the right side of the front wheel on the bicycle.

In a first step, the large gear is mounted on the spokes with cable ties.

The front wheel is removed from the bike. Fastening the gear depends on the number of spokes on the right side. For variants with opposite position and number, e.g., 16, 4 attachment points are provided; with an odd number, e.g., 18 spokes, 3 attachment points are provided.

There is a marking on the gear at an attachment point that is used for all spoke variants. The other attachment points are used depending on the spoke variant; they are either opposite each other or offset by 120° – see illustration with fastening scheme:





The cable ties are pulled around the crossing point (2 spokes) and closed on the inside (see mounting pictures).

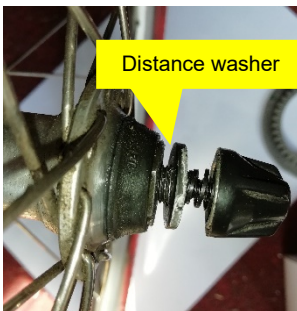
First, all cable ties are loosely connected, and the gear is aligned for uniform rotation. Then the cable ties can be hand-tightened; the gear and spokes must not bend!

Before the front wheel is mounted on the bicycle, a visual inspection is carried out to check whether the gear runs smoothly, and no swaying is recognizable (test concentricity with thru axle as in the "figure eight check").

The assembly of the kit "Counter" is ideally carried out on a bicycle assembly stand; the own mounting position is then in front of the front wheel. Small tools are suitable as adjustment tools: open-end wrench No. 7 (M4) or socket wrench screwdriver No. 7 (M4). The tightening of the self-locking nuts should always be hand-tight to avoid damage to the plastic!

First, the retaining plate is attached to the right side of the axle in the direction of travel, the front wheel is inserted into the wheel fork and mounted with the thru axle or quick-release axle; a fine adjustment for the later reading position can be made at the end.

The counter kit is attached to the pre-assembled screw with the reading direction "Up" and tightened with washer and self-locking nut so far that the triangular carrier no longer wobbles; the position should be to the right of the center of the slotted hole!). The counter kit is attached to the right side of the axle in the direction of travel, the front wheel is inserted into the wheel fork and mounted with the thru axle or quick-release axle.



Note: The retaining plate is approx. 1 mm thick. Depending on the front fork, it may be necessary to remove a spacer present on the axle (rarely).

Important: The front wheel should only be set in rotation by hand after the counter kit has been fine-tuned. Without fine adjustment, damage to the kit or gears can occur.

Tip: During the measurement drive, an open-end wrench no. 7 (M4) should be carried in the tool set.

3. Adjustment of the "Counter" kit

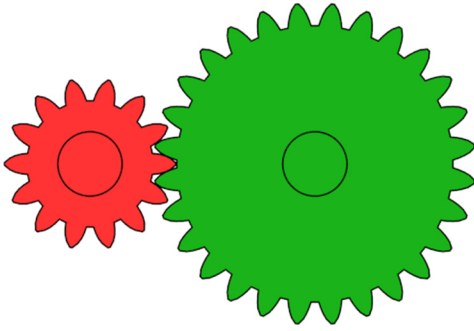
For the proper functioning of the "SchneiderRoth-Jones Counter" measuring device on the bicycle, a fine adjustment of the helical gear is necessary to prevent damage to the measuring device.

The counter is mounted on a flat retaining plate; this is pre-mounted on a triangular beam. The slotted holes allow fine adjustment of the small gear mounted on the counter and parallel alignment to the large gear on the front wheel.

When adjusting the front wheel on the wheel fork, make sure that the counter counting unit is optimally readable from the handlebar position.

3.1 Horizontal adjustment

The horizontal fine adjustment is used to establish the engagement of the two gears in height – mountain and valley complement each other in the transmission of the movement.



The self-locking nut on the triangular beam is loosened. It is now possible to move the triangular beam on the retaining plate. The distance between the mountain and valley of the gears should ideally be about 2mm; a conventional match can serve as a rule of thumb here. The wooden shaft should fit into the "mountain-valley" distance of the interlocking teeth.

This ensures that the "mountain" and "valley" of the gears have no direct contact and that the smooth-running properties of the measuring device are guaranteed. The nut is lightly screw on.

This [Diagramm](#) is created by [Jahobr](#) with [MATLAB](#).

3.2 Axis fine adjustment

The axis fine adjustment is used to ensure that the gears of the helical gear rotate in one plane to ensure optimal transmission of the movement and to minimize wear of the gears in the engagement plane.

The nut of the flat mounting plate is loosened. The counter with the engagement gear can be pushed into the engagement plane in the axial direction. Protrusion towards the spokes should be avoided so that the small gear does not meet the mounting plate of the large gear. A slight supernatant from the plane to the outside is tolerable (2/3 intervention plane should be established). The nut is lightly screw on.

3.3 Functional test

The front wheel can now be easily rotated by hand to check the function.



Proper functioning is ensured when the gears of the helical gear interlock in parallel in a line (engagement plane). This can be checked by rotating the front wheel forwards and backwards.

A second fine adjustment (3.1 + 3.2) may be required. The function of the counter should be checked before each trip. Likewise, the assembled parts should be checked for tightness before each course measurement.

The reading position on the handlebars can now be checked again. If necessary, slightly loosen the axle clamping of the front wheel, twist the counter kit for the optimal reading position and lock the axle clamping of the front wheel (ideally quick-release system) and check the adjustment of the spur gear.

Pre-production model (red) on the front wheel with hub dynamo

3.4 Temporary decoupling of the counter

The counting function can be interrupted by shifting the flat retaining plate from the engagement plane of the large gear. This allows the measuring device to remain on the bike and is inoperable during normal bike rides.

4. Counter Sales

The "SchneiderRoth-Jones Counter" is designed on the basis and functionality of the "Jones-Counter" developed by Alan Jones/USA for road course measurement and is offered worldwide to all accredited road course measurers and organizers of road competition events.

Distribution will initially take place within the duty-free borders of the EU; worldwide distribution is possible.

The order is placed informally stating the number of pieces, billing and delivery address:

sr-counter@laufstreckenvermessung.de

A confirmation of the order with the expected delivery time based on the available kits will be made in a timely manner.

An invoice with a request for payment will then be sent. The shipment will take place promptly after receipt of payment to the specified delivery address. The price list published in the currently published list for device and shipping applies; the shipment takes place with DHL. The prices are net in EURO without VAT.

The shipment will take place promptly after receipt of payment.

Further sales questions about the SR-JC can be sent to the contact address.

August 2024
Karl Josef Roth / Hans-Peter Schneider

Distribution of the „SchneiderRoth-Jones Counter“:

Contact:

GCRCM Service-Homepage:

<https://laufstreckenvermessung.de/jones-counter/>

sr-counter@laufstreckenvermessung.de

<https://laufstreckenvermessung.de>